

TECHNICAL MANUAL

AIRBORNE WEAPONS/STORES LOADING MANUAL

NAVY MODEL AV-8A AIRCRAFT

(Manual prepared by McDonnell Aircraft)

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15 JUNE 1972

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CONTAINS VITAL INFORMATION OF PARAMOUNT INTEREST TO ALL AFFECTED PERSONNEL

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LETTER OF PROMULGATION FOR  
AIRBORNE WEAPONS/STORES LOADING MANUAL

The Airborne Weapons/Stores Loading Manual and associated excerpts are a positive approach to improve safety and reliability in the loading of conventional and nuclear weapons and airborne stores.

The Conventional Weapons/Stores portion standardizes all respective loading procedures, but does not include flight procedures or tactical doctrine. If a conflict between this manual and other publications exists, the provisions of this manual shall prevail until the conflict is resolved by the Naval Air Systems Command.

Conventional Weapons Loading Check Lists are abbreviations of procedures found in this manual and are intended for use in loading operations. It is not intended that aircraft rearming personnel be required to carry the Conventional Weapons Loading Check List when such use is impractical. For use in the high tempo of operations areas an abbreviated Stores Reliability Card (SRC) has been promulgated. The SRC may be used in lieu of the Conventional Weapons Loading Check List by trained and certified personnel. When the SRC is authorized for use in lieu of the Conventional Weapons Loading Check List its use is mandatory. The SRC is a laminated card of a size to fit into a pocket. The SRC will contain information to:

1. Ensure that the aircraft is ready to receive the weapon.
2. Ensure that the weapon is ready to be loaded.
3. Ensure that the weapon was properly loaded.
4. Show the final steps to prepare the weapon for flight and intended use.

The Nuclear Weapons portion of this manual standardizes respective loading procedures and includes inflight weapon procedures. If a conflict between this manual and other publications exists, the provisions of this manual shall prevail until the conflict is resolved by the Naval Air Systems Command.

Nuclear Weapons Check Lists are abbreviations of procedures in this manual. These lists are directive in nature and their use is mandatory for aircraft nuclear weapons evolutions.



F. H. MICHAELIS  
Rear Admiral, USN  
Assistant Deputy Chief of  
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## SAFETY SUMMARY

The following safety precautions are general in nature, and are not related to any specific procedures; therefore, they do not appear elsewhere in this publication. These recommended safety precautions must be understood and applied by personnel during many phases of aircraft armament loading/unloading. The procedures specified in this manual are approved and verified procedures for AV-8A aircraft. The procedure must be understood by all personnel performing rearming evolutions.

SAFETY DEVICES SHALL ALWAYS BE USED AND MAINTAINED IN PROPER WORKING ORDER.

CHANGES, MODIFICATIONS, OR ADDITIONS TO ORDNANCE MATERIAL SHALL NOT BE MADE WITHOUT BEING APPROVED BY PROPER AUTHORITY.

NO AMMUNITION OR EXPLOSIVE SHALL BE USED IN ANY STORE OR ACCESSORY FOR WHICH IT IS NOT AUTHORIZED.

OFFICERS AND PETTY OFFICERS WHO AUTHORIZE MOVEMENT OF ORDNANCE MATERIAL BY POWER SHALL ENSURE THAT AN ADEQUATE SAFETY WATCH IS MAINTAINED IN THE AREA.

PERSONNEL WORKING WITH OR NEAR HIGH VOLTAGES SHALL BE FAMILIAR WITH MODERN METHODS OF RESUSCITATION. SUCH INFORMATION MAY BE OBTAINED FROM THE BUREAU OF MEDICINE AND SURGERY.

PROCEDURES AND PRECAUTIONS IN NAVAIR 16-1-529 AND OP 3565 (CONFIDENTIAL) SHALL BE COMPLIED WITH FOR EMCON (ELECTROMAGNETIC CONTROL) CONDITIONS.

## GENERAL SAFETY REQUIREMENTS

These safety requirements and precautions will be complied with by all personnel during all operations involving explosive items. All personnel engaged directly as well as indirectly in operations in which an explosive item and/or other hazardous material are involved shall be thoroughly trained in explosive safety and capable of recognizing hazardous conditions. Thinking safety and working safely must become a firmly established habit when working with or in the vicinity of items capable of exhibiting a hazard due to the nature of their explosive, flammable, or toxic fillers.

IF AN IMMEDIATELY DANGEROUS EXPLOSIVE ITEM IS ENCOUNTERED, ALL OPERATIONS IN THE IMMEDIATE VICINITY WILL BE SHUT DOWN, PERSONNEL EVACUATED TO A SAFE LOCATION, AND EOD OR OTHER AUTHORIZED PERSONNEL CALLED TO RENDER ASSISTANCE IN ELIMINATION OF THE HAZARD. OPERATIONS WILL NOT BE RESUMED UNTIL THE HAZARD HAS BEEN ELIMINATED.

DISASSEMBLY OF ANY MUNITION OR COMPONENT WITHOUT SPECIFIC AUTHORIZATION IS PROHIBITED.

WHEN LOADING OPERATIONS ARE ACCOMPLISHED DURING HOURS OF DARKNESS, ADEQUATE LIGHTING IS MANDATORY.

GOOD "HOUSEKEEPING" IS ESSENTIAL TO SAFE OPERATIONS. KEEP AREA CLEAR OF UNNECESSARY TOOLS AND EQUIPMENT AT ALL TIMES.

IF ANY MUNITIONS ITEM IS DROPPED, IT WILL NOT BE LOADED UNTIL IT HAS BEEN INSPECTED FOR SERVICEABILITY.

REJECT ANY MUNITION ON WHICH A QUESTIONABLE CONDITION EXISTS AND THE EFFECT ON RELIABILITY AND/OR SAFETY CANNOT BE ACCURATELY DETERMINED.

PERSONNEL WILL NOT STAND DIRECTLY IN FRONT OF BREECHES OR EXHAUST PORTS WHEN INSTALLING OR REMOVING CARTRIDGES.

IF JET ENGINES ARE RUNNING, PERSONNEL WILL REMOVE HATS AND WEAR EAR PROTECTORS. AIRCRAFT WILL NOT BE APPROACHED UNTIL PILOT PLACES BOTH HANDS IN FULL VIEW. USE EXTREME CAUTION WHEN WORKING NEAR ENGINE AREAS.

PERSONNEL WILL NOT STAND DIRECTLY IN FRONT OF OR IN BACK OF LOADED MISSILES, ROCKETS, FLARE DISPENSERS AND GUNS.



FUZES CONTAIN HIGH EXPLOSIVES AND SHALL BE HANDLED ACCORDINGLY.

FUZES SHALL BE HANDLED CAREFULLY TO PREVENT DAMAGE TO THREADS, EXTERNAL SURFACES, TIME DELAY SETTING PINS, INSPECTION WINDOWS, ETC.

FUZES MUST BE DETERMINED TO BE IN A SAFE OR UNARMED CONDITION BEFORE INSTALLATION IN A BOMB.

DETONATORS, BOOSTERS, PRIMERS, OR OTHER FIRING DEVICES SHALL NOT BE ASSEMBLED IN FUZES OR BOMBS UNLESS PRESCRIBED FOR IN SPECIFIC BOMB/FUZE ASSEMBLY OR INSTALLATION PROCEDURES.

FUZES SHALL NOT BE TESTED EITHER MECHANICALLY OR ELECTRICALLY.

FUZE ARMING VANES SHALL BE SECURED AT ALL TIMES EITHER BY SAFETY PIN, SAFETY WIRE, OR ARMING WIRE. UNSECURED ARMING VANES CAN CAUSE PREARMING AND/OR DETONATION OF THE FUZE OR BOMB.

FUZES SHALL NOT BE DISASSEMBLED NOR SHALL ANY ATTEMPT BE MADE TO REPAIR OR RENDER INERT ANY FUZE OR BOMB.

NO ATTEMPT SHALL BE MADE TO DISARM A PARTIALLY OR FULLY ARMED FUZE. ANY FUZE THAT INDICATES FULL OR PARTIAL ARMING, OR IS SUSPECTED TO BE UNSAFE OR UNRELIABLE, SHALL BE REPORTED TO PROPER AUTHORITY.

ONLY AUTHORIZED TOOLS SHALL BE USED FOR INSTALLATION OR REMOVAL OF FUZES.

IMMEDIATELY AFTER ENGINE SHUTDOWN AFTER FLIGHT OR GROUND ABORT, BOMB FUZES MUST BE INSPECTED TO DETERMINE ARMED, SAFE OR UNARMED CONDITION. IF A SAFE CONDITION IS NOT INDICATED, NOTIFY PROPER AUTHORITY.

FUZES SHALL BE MAINTAINED IN SUITABLE HANDLING CONTAINERS AT ALL TIMES WHEN NOT INSTALLED.

DISPOSAL OF DAMAGED BOMBS, FUZES, OR ASSOCIATED COMPONENTS THAT INDICATE FULL OR PARTIAL ARMING SHALL BE ACCOMPLISHED BY EXPLOSIVE ORDNANCE DISPOSAL (EOD) PERSONNEL.

The following Warnings appear in the text of this manual and are repeated here for emphasis.

WARNING

PRIOR TO APPLYING POWER, COCKPIT SWITCHES AND CONTROLS MUST BE READY TO RECEIVE POWER.

WARNING

THIS MANUAL DOES NOT AUTHORIZE STATION LOADING FOR FLIGHT. FOR SPECIFIC AUTHORIZATION REFER TO TACTICAL MANUAL.

WARNING

ON MK 36/40 DESTRUCTORS, IF ARMING WIRE IS INADVERTENTLY WITHDRAWN FROM THE FIRING MECHANISM (TAIL COMPONENT) OR ARMING DEVICE, OR IF RED INDICATION IS VISIBLE IN ARMING DEVICE INSPECTION WINDOW, CLEAR AREA AND NOTIFY PROPER AUTHORITY IMMEDIATELY.

WARNING

ELECTRICAL POWER SHALL NOT BE APPLIED TO THE AIRCRAFT AT ANY TIME DURING LOADING/UNLOADING OPERATIONS.

WARNING

DO NOT ATTEMPT TO DISARM PARTIALLY OR FULLY ARMED FUZE. NOTIFY PROPER AUTHORITY.



WARNING

ENSURE ROUTING OF ARMING WIRES DOES NOT INTERFERE WITH BOMB RACK EJECTOR PISTONS.

WARNING

ENGINE NOZZLES MUST BE AFT AND ENGINE AT GROUND IDLE PRIOR TO APPROACH-AIRCRAFT.

WARNING

PILOT MUST PLACE BOTH HANDS IN FULL VIEW PRIOR TO COMMENCING STRAY VOLTAGE CHECK.

WARNING

IF STRAY VOLTAGE IS DETECTED, DO NOT ELECTRICALLY CONNECT LAUNCHER. NOTIFY PROPER AUTHORITY.

The following cautions (or intent thereof) appear in the text of this manual and are repeated here for emphasis.

CAUTION

AIRCRAFT BATTERY SWITCHES MUST BE ON PRIOR TO AND WITH EXTERNAL POWER APPLIED TO AIRCRAFT TO PREVENT DAMAGE TO AIRCRAFT ELECTRICAL SYSTEM.

CAUTION

TO PREVENT DAMAGE TO PYLON CIRCUITRY DO NOT ENERGIZE JETTISON CIRCUITS LONGER THAN 3 SECONDS.



## SECTION I

### INTRODUCTION

#### 1-1. PURPOSE.

1-2. The purpose of this manual is to provide personnel with detailed information on the AV-8A aircraft weapon systems. Verified and approved release and control system checks, loading procedures, configuration, and reconfiguration procedures are included in this manual. Conventional Weapons Loading Checklist are abbreviations of procedures found in this manual and are intended for use in loading operations. It is not intended that personnel be required to carry the Conventional Weapons Loading Checklist when such use is impractical. For use in the high tempo of operations areas an abbreviated Stores Reliability Card (SRC) has been promulgated. The SRC may be used in lieu of the Conventional Weapons Loading Checklist by trained and certified personnel. When the SRC is authorized for use in lieu of the Conventional Weapons Loading Checklist its use is mandatory. The SRC is a laminated card of a size to fit in a pocket. The SRC will contain information to:

1. Ensure that the aircraft is ready to receive the weapon.
2. Ensure that the weapon is ready to be loaded.
3. Ensure that the weapon was properly loaded.
4. Show the final steps to prepare the weapon for flight and intended use.

All references to nuclear weapons in the letter of promulgation are to be disregarded for the AV-8A aircraft.

NAVAIR 01-700, Conventional Nuclear Weapons Quarterly Index is a tabular listing by type of aircraft of loading manuals, checklists, store reliability cards, and latest changes and dates. The federal stock numbers (FSN) of items listed are included.

#### 1-3. SCOPE.

1-4. This manual provides loading and unloading procedures and information on the aircraft weapons release and control system, airborne weapons and stores, and ground support equipment (GSE). Loading procedures in this manual shall not be construed as authority to load for flight any weapon or store.

1-5. If a conflict between this manual or its associated checklists, and other directives exists the provision of this manual shall prevail until the conflict is resolved by the Naval Air System Command.

1-6. Comments and recommendations concerning this manual should be forwarded, via chain of command, to Commanding Officer, Naval Weapons Evaluation Facility (NWEF), Kirtland Air Force Base, New Mexico 87117. Send one copy direct to NWEF,

COMNAVAIR-PAC/LANT, and CGFM PAC/LANT. Report discrepancies in accordance with OPNAV Instruction 4790.2. Major discrepancies affecting safety or reliability of weapons/stores operations should be reported direct to NWEF by message with information to the chain of command, COMNAVAIRPAC/LANT, and CGFMFPAC/LANT.

#### 1-7. CONTRACT NUMBER.

1-8. This manual was prepared under contract N00019-71-C-0495.

#### 1-9. CHANGES TO MANUAL.

1-10. Changes accumulated will be published when necessary to add, delete, or revise information presented in this manual. Comments and recommendations concerning this publication shall be forwarded in accordance with procedures established in the current edition of OPNAV Instruction 4790.2 on Unsatisfactory Report (UR) NAVAIR Form 1370/5. The lines of text that are revised or added during a current revision will be identified in the outer margin with a vertical black line. The covers of this manual are reusable and should be retained for use with superseding publications.

1-11. RAPID ACTION CHANGE. A Rapid Action Change (RAC) program has been initiated for manual change. A type I Interim RAC is a message change. A Type II formal RAC is a page change. The RAC will be used for manual change which affect safety and reliability. The numbering for RAC shall be assigned consecutive arabic numbers, beginning with 1 throughout the life of the technical manual. Numbers will be issued by the Naval Weapons Evaluation Facility.

#### 1-12. ARRANGEMENT OF MANUAL.

1-13. This manual is presented in sections to provide description, conversion, testing, common procedures, and loading and unloading procedures for each weapon/store or each family group of similarly loaded weapons/stores. Procedures for similarly loaded stores are presented in the same section. Destructors; general purpose; and large practice bombs are grouped for presentation in this manual as a loading family since they load and unload in the same manner. This grouping of similarly loaded stores permit loading and unloading operations to be accomplished with a minimum of cross-referencing of procedures.

1-14. SECTION I - INTRODUCTION. This section contains the purpose and scope of coverage, arrangement of the manual, assumptions, reference publications, technical directives, and information for the use of the manual.



1-15. SECTION II - DESCRIPTION. This section lists and describes system and system components necessary to complete a conventional weapon loading/unloading evolution. Illustrations show the location of system components in the aircraft. Descriptions and illustrations are provided for weapon system accessories, weapons and stores, and ground support equipment (GSE).

1-16. SECTION III - CONFIGURATION DATA. This section contains data concerning aircraft armament configuration capabilities, identification of equipment which is installed on, or removed from, the aircraft during the various armament configuration changes.

1-17. SECTION IV - RELEASE AND CONTROL SYSTEM CHECKS. This section contains preferred procedures and, if available, one alternate procedure for conducting release and control system checks of the aircraft weapons systems.

1-18. SECTION V - COMMON PROCEDURES. This section contains procedures which are common to more than one section of the manual and must be performed to complete a safe and reliable weapon/store loading. These procedures are presented once in this section to avoid repetition and are referenced in Section VI and subsequent sections. Detailed fuzing and arming wire procedures are included.

1-19. SECTION VI AND SUBSEQUENT - WEAPON AND STORE LOADING. These sections contain detailed loading procedures for single weapon/store or for a group of similarly loaded weapons and stores. The procedures include aircraft preparation/inspection, weapon and store inspection, loading, post-loading - quality assurance, prior-to-launch, after landing or ground abort, turnaround, and unloading procedures.

#### 1-20. HOW TO USE THE MANUAL.

1-21. The following outline explains how to obtain maximum use of the contents of this manual.

1. The assumptions in paragraph 1-22 must be read and complied with.
2. Determine required components for configuration. (Refer to Table 3-1).
3. Accomplish conversion in accordance with section III.
4. Accomplish release and control system checks. (Refer to Table 4-2).
5. For common procedural steps and fuzing or arming wire installation refer to section V.
6. Load weapon/store in accordance with applicable loading section.
7. To ensure a safe and reliable load, the applicable weapon/store loading section, checklist, or stores reliability card (SRC), shall be utilized.

8. If a turnaround (reload with no configuration change) is required, utilize the applicable portions of the checklist.

9. Unload weapon/store in accordance with applicable unloading section.

#### 1-22. ASSUMPTIONS.

1-23. The following lists of conditions pertaining to the aircraft, weapons, stores, and unloading crew must be met before using the procedures presented in this manual.

1. Loading crew is certified in accordance with applicable instructions.
2. Personnel familiar with aircraft external hazards (paragraph 2-5).
3. Firefighting equipment is available and all fire hazards removed from immediate area.
4. Aircraft is positioned in a designated loading area with adequate clearance for handling and loading equipment.
5. Aircraft chocks and tiedowns are installed as required.
6. Landing gear downlocks are installed as required.
7. Seat ejection safety pins are installed.
8. Ground handling equipment available and ready for use.
9. Aircraft is serviced.
10. Aircraft system checks, other than armament checks, completed.
11. Weapon or store assembled and ready for loading (including fuze installation as applicable) before delivery to aircraft.
12. Fuzes to be installed are fully inspected, and certified ready for installation prior to delivery to the loading crew.
13. Aircraft in ready condition to receive weapon or store.
14. Armament safety precautions complied with. Required safety pins/devices installed (paragraph 2-6).
15. After loading or unloading, handling equipment and all excess hardware (arming wires, fuze boxes, test equipment, etc.) will be removed from area.
16. Personnel are familiar with arming and safing signals contained in table 5-5.



1-24. REFERENCE PUBLICATIONS.

1-25. This manual provides a listing of publications related to procedures, operations, or equipment, and serves as a reference for manual users. Maintenance

instruction manuals (MIM) used in conjunction with this manual are listed in table 1-1. Additional reference publications which are not listed may be found in the NAVAIR 00-500 series and NAVSUP Publication 2002.

Table 1-1. Reference Publications

PUBLICATION TITLE	PUBLICATION NO.	CROSS-REFERENCE NO.
<u>NATOPS FLIGHT MANUAL</u>		
AV-8A Air Crew Manual	NAVAIR 101B-0601-15A	
AV-8A Air Crew Manual	NAVAIR 101B-0601-15B	
Tactical Manual	NAVAIR 01-AV-8A-1T	
<u>SAFETY MANUALS</u>		
Ordnance Safety Precautions	OP 3347	
Ammunition Afloat (Vol I, II)	OP 4	
Ammunition Ashore (Vol I, II, III)	OP 5	
Navy Transportation Safety Handbook	OP 2165	
Radiation Hazards	OP 3565 NAVAIR 16-1-529	
Rules and Regulations for Military Explosive and Hazardous Munitions	CG 108	
Toxic Hazards Associated with Pyrotechnic Items	OP 2793	
<u>AIRCRAFT MAINTENANCE MANUALS</u>		
Aircraft servicing manual	101B-0601-1	
Chapters 1 to 12	101B-0601-1A	
Chapters 15 to 21	-1B	
Chapters 23 to 29	-1C	
Chapters 40 to 48	-1D	
Chapters 55 to 63	-1E	
Chapters 70 to 72	-1F	
Chapters 80 to 90	-1G	
General orders and modification leaflets	101B-0601-2	
Illustrated parts catalogue	101B-0601-3A	
Appendix A - Schedule of airborne equipment	-3B	
Scales of unit equipment	-3C	
Scales of servicing spares	-3D	
Master servicing schedule	101B-0601-5A1	
Safety and servicing notes	-5A2	
Servicing procedures	-5A3	
Suggested servicing plans	-5A4	
Servicing procedures subject to special approval	101B-0601-5A5	
Weapon loading schedule	-5A6	
Flight servicing	-5B1	
Minor servicing	-5C	



Table 1-1. Reference Publications (Continued)

PUBLICATION TITLE	PUBLICATION NO.	CROSS-REFERENCE NO.
<u>AIRCRAFT MAINTENANCE MANUALS (CONT)</u>		
Major servicing	-5D	
Change of role procedures	-5E	
Bay servicing schedules	-5F	
Non-destructive test schedules	-5G	
Sampling requirements and procedures	-5H	
Special to type support equipment	-5J	
Anti-deterioration schedule	-5L	
Flight test schedule	-5M	
Preparation for storage	-5N	
Servicing during storage	-5P	
Preparation for issue	-5Q	
Dismantling and re-erection	-5R	
Cross servicing schedule	-5S	
Operation turn-round schedule	-5T	
Operational readiness servicing schedule	-5U	
Contingency servicing schedule	-5V	
Ground support equipment servicing requirements	-5X	
Aircraft repair manual	101B-0600-6A	
Servicing diagrams manual	101B-0601-10	
Cross servicing guide	101B-0601-12	
Flight reference cards	101B-0601-14	
Aircrew Manual	101B-0601-15	
Operating data manual	101B-0601-16	
Main u/c unit	104B-0101-13A	
Nose u/c unit	104C-0101-13A	
Shock absorber unit	104C-0102-13A	
Outrigger unit port	104E-0101-13A	
Outrigger unit stbd		
Main wheel	104F-1023-1	
Outrigger wheel	104G-1015-13A	
Nose wheel	104G1019-1	
Tubeless tires	104H-1001-1	
Wheel speed sensor	104J-1013-13A	
Exciter ring		
Brake unit	104J-1015-13A	
Aircraft assisted escape systems - common components	109A-0001-1	
Rocket assisted ejection seat	109B-0136-1	
Ejection gun	109C-0104-1	
Drogue gun	109D-0203-1	



Table 1-1. Reference Publications (Continued)

PUBLICATION TITLE	PUBLICATION NO.	CROSS-REFERENCE NO.
<u>AIRCRAFT MAINTENANCE MANUALS (CONT)</u>		
Barostatic-time release unit	109E-0103-1	
Breech firing units (seat firing system and guillotine)	109F-0201-1	
Personal equipment connector Man portion A/C portion	109G-0102-1	
Actuator-electric seat-raising	109G-0201-1A	
Guillotine (gas-operated)	109G-0701-1	
Carrier, Pylon, Harrier	110G-0113-15F	
ERU	110G-0310-15F	
Fuzing unit	110G-0401-1	
Installation and preparation for use - Aden gun pods - Harrier aircraft	110J-0203-15F	
Cartridge RP initiating	110N-3030-1	
Cartridge, seat ejection, primary	110N-3010-1	
Cartridge, seat ejection, secondary	110N-0308-1	
Cartridge, seat ejection, drogue	110N-0307-1	
Cartridge, seat ejection, guillotine	110N-0305-1	
Seat ejection cartridges, and associated explosive stores	110N-0300-1	
Cartridges, ERU	110N-0402-1	
Explosive start valve	110N-0603-13A	
Cartridges, fire extinguisher	110N-0703-1	
Rear tank units	112G0701-1 & 6	
Weapon aiming computer	112J-0104-16-10	
Navigation display and computer	112J-0110-16-10	
Navigator Control	112J-0111-16-10	
Hand Controller	112J-0112-16	
Ballistics Plugs	112J-0113-16-10	
Ballistics Box	112J-0114-16-10	
Pilots display panel Standby sight	112J-0121-16	
Pilots control panel	112J-0124-1	



Table 1-1. Reference Publications (Continued)

PUBLICATION TITLE	PUBLICATION NO.	CROSS-REFERENCE NO.
<u>AIRCRAFT MAINTENANCE MANUALS (CONT)</u>		
Battery	113C-0202-1	
Battery	113C-0208-1	
Reverse current circuit breakers	113D-0901-16	
Integrated control unit panel	113D-0790-1-6	
Circuit breaker	113D-0913-1	
Armament master switch		
Cabin air control switch		
Standby trim switches		
Safety break switch	113D-1115-1	
Navigation lamp control switch		
Water selection switch		
Mode selector switch	113D-1125-1	
Weapon control panel	113G-0116-1 & -6	
Indicator		
Aircraft crash removal methods and equipment	119Q-0200-16	
Test set, universal pylons and carriers	120G-0113-1	
Test set, complete armament system check at 1st line	120G-0707-1	
Aden gun Mk.4 R/H feed		
Aden gun Mk.4 L/H feed	1641S Vol. 1	
Barrel Mk.2	Pt. 1 & 3	
Nut cradle		
Rocket Series	Rocket pack	
Lubrication - general	101B-0601-D1	
<u>TEST EQUIPMENT</u>		
AN/PSM-4 through -4C, -6; C/U through F/U; ME-185/USM-123; TS-352/U, AU, B/U, TS-297/U (1) through U(4); Simpson Series 260 and 269; Triplett 630, 630 PL; Weston 980 Milliammeters, volt-ohm; Instrument Calibration Procedures	NAVAIR 17-15BAB-20 NW20-5CB1-3	
AN/ASM-20B Guided Missile Launcher Test Set	NAVAIR 16-30ASA20-2	
TS-2875A/AWM Armament Firing Circuit Test Set	NAVAIR 17-15F-3 Revision I	
Explosive Release Unit Test Set EXP 6101	None available	



Table 1-1. Reference Publications (Continued)

PUBLICATION TITLE	PUBLICATION NO.	CROSS-REFERENCE NO.
<u>TEST EQUIPMENT (CONT)</u>		
TTU-304/E Tester, Guided Missile, IR Source	None available	
<u>OPERATION AND MAINTENANCE INSTALLATION HAND BOOKS</u>		
ACCESSORIES		
LAU-7/A Guided Missile Launcher, Operation and Maintenance Instructions	NAVWEPS 11-75A-54	
A/A37B-3 Practice Multiple Bomb Rack, Operation and Maintenance Instruction	NAVAIR 11-5C-20	
ADU-299A/A Missile Launcher Adapter	NAVAL AIR DEVELOPMENT CENTER WARMINSTER, PENNSYLVANIA 18974 ECP NUMBER ADU-299A/A-1A ADU-299/E ADAPTER PRIMARY CABLE ASSY; modification of	
Outboard, inboard and fuselage pylons	A.P. 101B-0601-1G Chapter 80-20	
<u>ORDNANCE ASSOCIATED PUBLICATIONS</u>		
WEAPONS/STORES		
Airborne Rocket Launcher Type LAU-60/A Operation Instructions	NAVAIR 11-75A-47	
Airborne Rocket Launcher Type LAU-61/A Operation Instructions	NAVAIR 11-75A-50	
Airborne Rocket Launcher Type LAU-68/A Operation Instructions	NAVAIR 11-75A-51	
Airborne Rocket Launcher Type LAU-69/A Operation Instructions	NAVAIR 11-75A-52	
Aircraft Bombs, Fuzes, and Associated Components	NAVAIR 11-5A-17	
Aircraft Parachute Flare Description and Handling Instructions, MK 24	OP 2213	
Aircraft Rockets, Vol I	NAVAIR 11-85-5	
Aircraft Rockets, Vol II	NAVAIR 11-85-6	
Air Weapons Bulletins (NOTS)	TP 3170	
Cartridges and Cartridge Actuated Devices for Aircraft and Associated Equipment	NAVAIR 11-100-1	
CBU-24/B Aircraft Dispenser and Bomb	NAVAIR 11-5A-1	



Table 1-1. Reference Publications (Continued)

PUBLICATION TITLE	PUBLICATION NO.	CROSS-REFERENCE NO.
<b>WEAPONS/STORES (CONT)</b>		
Folding Fin Aircraft Rocket 5 Inch	OP 2626	
Folding Fin Aircraft Rocket 2.75-Inch	NAVAIR 11-85-4	
Guided Missile AIM-9B/D/G and Type I and II Training Missiles; Assembly, Checkout, and Maintenance Instructions with Illustrated Parts Breakdown	NAVAIR 01-80GMB-2	
Guided Missile AIM-9B Type I and III Training Missiles and Guided Missile AGM-87A-1; Assembly, Checkout and Maintenance Instructions with Illus- trated Parts Breakdown	NAVAIR 01-80GMC-2	
Index of Ordnance Publications	OP-0	
LAU-10/A Rocket Launcher (ZUNI)	NAVAIR 11-75A-20	
LAU-10A/A Rocket Launcher (Zuni)	NAVAIR 11-75A-20	
LAU-10B/A Rocket Launcher (Zuni)	NAVAIR 11-75A-20	
MK 81 Snakeye 1 Bomb with MK 14 Mod 0 and Mod 1 Fin	NAVAIR 11-5A-18	
MK 82, 500-Pound GP Bomb	NAVAIR 11-57-33	
(Confidential) Naval Air Launched General Ordnance (U)	NAVAIR 00-120A-2	
Pyrotechnics and Miscellaneous Explosive Items	OP 2213	
Sidewinder Guided Missile Exercise Head MK 2 Mod 0; Description, Operation, and Maintenance	NAVAIR 11-75-51	
SUU-40/A Parachute Flare Dispenser, Operation, Maintenance, and Overhaul Instructions with Illustrated Parts Breakdown	NAVAIR 11-75AA-39	
SUU-44/A Parachute Flare Dispenser, Maintenance Instruction Manual with Illustrated Parts Breakdown	NAVAIR 11-15SUU-44/A-1	
<b><u>LOADING/HANDLING EQUIPMENT PUBLICATIONS</u></b>		
<b>LOADING EQUIPMENT</b>		
Aero 33 Bomb Truck	NAVAIR 19-15BB-504	
Aero 47A/MJ-7 Weapons Loader	NAVORD OP 2173	
Aero 64A Hoisting Bar	NAVORD OP 2173	
Aero 66A Manual Hoisting Bar	NAVORD OP 2173	
Aero 69A Manual Hoisting Bar	NAVORD OP 2173	



Table 1-1. Reference Publications (Continued)

PUBLICATION TITLE	PUBLICATION NO.	CROSS-REFERENCE NO.
LOADING EQUIPMENT (CONT)		
MK 7 Bomb Trailer	NAVAIR 19-15BB-7	
SATS Weapon Loader (A/S32K-1)	NAVAIR 19-15BA-39	
Rough Terrain Trailer A/M32K-4-4A	NAVAIR 19-25E-43	
Weapons Trailer; (SATS) A/M32K-3	NAVAIR 19-25E-45	
HANDLING EQUIPMENT		
Aero 8C or 8C-1 Bomb Skid Adapter	NAVAIR 00-120A-4	
Aero 9 Adapter	NAVAIR 00-120A-4	
Aero 12 Bomb Skid	NAVAIR 19-15BC-12	
Aero 16B Missile Skid	NAVAIR 00-120A-4	
Aero 18A Bomb Skid Adapter	NAVAIR 00-120A-4	
Aero 21 Weapon Skid	NAVAIR 19-15BC-13	
Aero 30A Adapter Kit	NAVAIR 00-120A-4	
Aero 30A-2 Sidewinder Adapter	NAVAIR 00-120A-4	
Aero 36A Bomb Skid Adapter	NAVAIR 19-15BD-501	
Aero 51A Weapon Trailer	NAVAIR 19-25E-51	
Aero 62A Truck Adapter	NAVAIR 00-120A-4	
Aero 63A Skid Adapter	NAVAIR 19-15BD-1	
Aero 64A Soft Belt Adapter	NAVAIR 00-120A-4	
Aero 64B Soft Belt Adapter	NAVORD OP 2173	
Aero 65A Skid Adapter	NAVAIR 00-120A-4	
Aero 74A Skid/Trailer Adapter	NAVAIR 00-120A-4	
Aero 75A Skid/Trailer Adapter	NAVAIR 00-120A-4	
Aero 81A Weapon Loader Adapter	NAVAIR 19-15BE-4	
MHU-63/E Small Universal Cradle	NAVORD OP 2173	
MHU-65/E Large Universal Cradle	NAVORD OP 2173	

# 1-26. TECHNICAL DIRECTIVES.

1-27. Technical Directives are letter type publications including effectivities issued to accomplish one time changes to, or impart precautionary instructions or inspections to aircraft or related equipment. Issue dates of the Technical Directives coincide with the availability of the parts required to make the change. Those Technical Directives concerning the data in this manual are listed in Table 1-2. Technical data in this manual made obsolete by a Technical Directive

will be deleted in accordance with the following schedule:

1. Immediate Changes: Delete old data at same time the new change data is incorporated in the manual.
2. Urgent Changes: Retain old data for two years after issue date of the applicable Technical Directive.
3. Routine Changes: Retain old data for three years after the issue date of the applicable Technical Directive.



Table 1-2. Record of Technical Directives

DIRECTIVE NO.	ISSUE DATE	TITLE	PURPOSE OF CHANGE	INCORPORATED IN MANUAL	EFFECTIVITY
AAB-329	20 Apr 64	LAU-10/A (Zuni) Rocket Launcher; Fabrication and use of Homing Test Harness in performance of homing the intervalometer to the zero position prior to reuse of launcher.	To provide a portable power source for performing launcher "Homing Test"	15 Jun 72	All LAU-10/A (Zuni) Rocket Launchers
AAB-329 AM-1	23 Aug 65	Same as AAB 329	To correct figure 1	15 Jun 72	
AAB-384	31 Jan 66	LAU-7/A Launcher N2 Receiver; Instructions for removal of	To prevent a hazard to personnel and equipment.	15 Jun 72	All LAU-7/A Launchers
AAB-394	22 Nov 68	2.75 inch rocket launchers; restrictions for	Reports have been received that 2.75 inch (FFAR) in some launchers are being lost due to arrestment creating a hazard to personnel and equipment.	15 Jun 72	All 2.75 Rocket Launchers with live or inert warheads, except LAU-32B/A, LAU-61/A and LAU-69
AAB-415 INT	16 Nov 67	SUU-40/A parachute flare dispenser, instructions concerning	To provide instructions for use of safety switch pin and flag assembly installed on subject dispenser.	15 Jun 72	All SUU-40/A parachute flare dispensers.
AAB-424 INT REV A	24 Feb 68	LAU-10/A rocket launchers; maintenance for.	To cancel AAB 424 INT; to specify electrical tests on LAU-10A/A without AAC-525 incorporated and to specify electrical test on LAU-10A/A with AAC-525 incorporated.	15 Jun 72	All LAU-10/A rocket launchers.
AAB-426 INT	15 March 68	Hazard in making erroneous setting to MK 24 flare fuzes.	To warn all users of potential hazards created by improper setting of fuzes.	15 Jun 72	All aircraft carrying MK 24 flares
AAB-427 INT	25 March 68	Forward RF barriers; deletion of	To delete requirement for use of forward RF barriers on reusable metal tube 2.75 inch rocket launchers.	15 Jun 72	LAU-61/A, LAU-68A and LAU-32B/A
AAB-437	11 Oct 68	MK 45 flare/SUU-40/A and SUU-44/A flare dispenser. Preload-ing instructions.	To disseminate proper and safe procedures for loading of MK 45 MOD 0 parachute flare dispensers prior to dispenser being loaded on aircraft.	15 Jun 72	All SUU-40/A and SUU-44/A dispensers.



Table 1-2. Record of Technical Directives (Continued)

DIRECTIVE NO.	ISSUE DATE	TITLE	PURPOSE OF CHANGE	INCORPORATED IN MANUAL	EFFECTIVITY
AAB 439 INT	23 Oct 68	SUU-40/A and SUU-44/A Parachute Flare Dispenser/MK 24 MOD 4 Aircraft Parachute Flares	Emphasizes adherence to published instructions for loading.	15 Jun 72	All SUU-40/A and SUU-44/A Dispensers
AAB 441 INT	19 Nov 68	SUU-40/A and SUU-44/A Parachute Flare Dispenser/MK 24 MOD 4 Aircraft Parachute Flares	Emphasizes adherence to published instructions for loading.	15 Jun 72	All SUU-40/A and SUU-44/A Dispensers
AAB 446 INT	17 Mar 69	SUU-44/A Parachute Flare Dispenser Instructions concerning the Replacement of Riv-Nuts in the Aft Bulkhead for Securing The Shear Latch Assemblies	Refer To Title	15 Jun 72	All SUU-44/A Dispensers
AAB 448	22 Apr 69	Anti Tank Bomb Cluster, MK 20 MOD 20 (ROCKEYE II), Arming Wire; Field fix of	Ensure that arming wire protrudes a minimum of 1/4-inch beyond band release studs	15 Jun 72	All MK 20 MOD 2
AAB 452 INT	13 Jun 69	MK 346 MOD 0, Bomb, Fuze; Information Concerning Setting	Provides information on setting of subject fuze.	15 Jun 72	All MK 346 MOD 0 Bomb Fuzes.
AAB-453 INT	18 July 69	Dispensing and handling of MK 24/MK 45 parachute flares safety procedures for.	Safety procedures for MK 24/MK 45 parachute flares.	15 Jun 72	All MK 24/MK 25 parachute flares.
AAC-383	27 Apr 64	Model A/A37B-3 Practice Multiple Bomb Rack (PMBR) modification of hook return spring spacer.	To increase reliability	15 Jun 72	All PMBR's before Serial No. 905
AAC-396	15 Dec 64	Model A/A37B-3 practice multiple bomb rack; replacement of station selector and actuators.	To replace station selector and release actuators in order to reduce electrical power requirements to approximately four amperes.	15 Jun 72	A/A37B-3 with S/N 1 thru 1420
AAC-432	30 Sept 65	LAU-7/A launcher Lift tool for; loading procedure and modification.	To provide launcher loading procedures and a lift tool modification which will reduce possibility of the loss of AIM-9 missiles.	15 Jun 72	All LAU-7/A Missile 1 thru 1420
AAC-438	31 Jan 66	LAU-7/A Launcher Front Fairing; strengthening of left and right hand doors	To strengthen the hinge line of the doors.	15 Jun 72	All LAU-7/A Launchers
AAC-438 AM-1	26 July 67	Same as AAC-438	To provide extra kits	15 Jun 72	All LAU-7/A Launchers



Table 1-2. Record of Technical Directives (Continued)

DIRECTIVE NO.	ISSUE DATE	TITLE	PURPOSE OF CHANGE	INCORPORATED IN MANUAL	EFFECTIVITY
AAC-473	1 Nov 66	Snakeye fin assembly; modification of.	To replace release bands having questionable performance on Snakeye I bomb fin assemblies, MK 14 and MK 15 and to modify certain MK 14 bomb fins for use in unretarded delivery mode only.	15 Jun 72	All MK 14 MOD 0, 1, 2, and MK 15 MOD 1 Fins
AAC-493	15 Nov 67	Model A/A37B-3 Practice Multiple Bomb Rack (PMBR); replacement of release crank and modification of the support.	To provide instruction for the replacement of the release assembly crank and modification of support.	15 Jun 72	A/A37B-3 PMBR serial number 1 through 1451
AAC-494	1 July 67	Mark 24 aircraft parachute flare; External carriage and installation procedures.	To improve safety and reliability of the MK 24 parachute flares when carried externally on applicable aircraft bomb rack. Adherence to method of procedures prescribed here is important for prevention of lanyard breakage and inadvertent fuze arming of flare.	15 Jun 72	All MK 24 Flares carried on subject racks
AAC-506	15 Nov 67	SUU-40/A parachute flare dispenser: information stencil for.	To provide a means of determining flare fuze settings and impulse cartridge installation information in SUU-40/A parachute flare dispenser after it has been loaded and ready for use.	15 Jun 72	All SUU-40/A Dispensers
AAC-516	8 Apr 68	LAU-7/A Guided Missile Launcher Nitrogen Receiver Charging valve; Change for.	Reduce torque requirement for nitrogen receiver charging valve.	15 Jun 72	All LAU-7/A Launchers.
AAC-519	18 Nov 68	LAU-10/A Zuni Rocket Launcher P/N 55A27J1, replacement of shorting devices.	To improve reliability and safety.		All 55A22J1 rocket launchers.
AAC-525 INT	23 Apr 68	LAU-10A/A launcher; Procedure for replacing and rewiring of the safety switch assembly in Launchers.	To replace existing safety switch assembly with a new switch because of malfunctions as reported and to provide aircraft rocket firing circuit to be open when safety pin is installed.	15 Jun 72	All LAU-10A/A Launchers



Table 1-2. Record of Technical Directives (Continued)

DIRECTIVE NO	ISSUE DATE	TITLE	PURPOSE OF CHANGE	INCORPORATED IN MANUAL	EFFECTIVITY
AAC-525 INT AM-1	Oct 1968	LAU-10A/A Launcher	To check function of intervalometer and intervalometer rocket firing contact circuits, prior to reuse.	15 Jun 72	All LAU-10A/A Launchers.
AAC-526 & Amend. 1	25 Apr 68	LAU-7/A sidewinder launcher deficiency	To provide instructions for enlarging access hole in launcher and adapter to provide clearance for cable connector P/N OM0703-275.	15 Jun 72	All LAU-7/A Launchers
AAC-527	30 Apr 68	SUU-40/A parachute flare dispenser; breech cap electrical lead for.	To provide additional length to the breech cap electrical leads, Recommend to prevent breaking of the leads.	15 Jun 72	All SUU-40/A Dispensers
AAC-529	3 Jun 68	MK 15 MOD 1 bomb fin assembly attachment of fin release wire guide tube with clamp vice, safety wire for retarded weapon delivery.	To prevent aircraft damage caused by fin release wire guide tubes that separate from MK 15 MOD 1 fin assemblies following release retarded weapons by assuring secure attachment of guide tubes to fin assemblies.	15 Jun 72	All MK 15 MOD 1
AAC-531	4 Nov 68	Model A/A37B-3 Practice Multiple Bomb Rack (PMBR), Modification and installation of bulkheads and installation of angle clips.	To strengthen PMBRS.	15 Jun 72	All PMBRS
AAC-537	2 Feb 71	LAU-7/A Missile Launcher; modification of	Add a detent hold-down pin through launcher.	15 Jun 72	All LAU-7/A Missile Launchers
AAC-545	29 May 69	LAU-7/A and LAU-7/A-1 Missile Launcher; Addition of Sidewinder Missile Fin Retainer	To prevent the missile fins from fluttering which causes severed vibration leading to missile breakup.	15 Jun 72	All LAU-7/A and LAU-7/A-1 Missile Launcher
AAC-562	1 Aug 70	SUU-40/A Parachute Flare Dispenser; Replacement of safety Switch.	To provide for replacement of existing safety switch with new safety switch to eliminate operational failures resulting from vibration.	15 Jun 72	All SUU-40 Parachute Flare Dispenser with Part Number 10768.



Table 1-2. Record of Technical Directives (Continued)

DIRECTIVE NO.	ISSUE DATE	TITLE	PURPOSE OF CHANGE	INCORPORATED IN MANUAL	EFFECTIVITY
IAAC 586	Oct 71	A/A37B-3 PMBR (Practice Multiple Bomb Rack Electrical wiring change to	To provide electrical compatibility for AV-8A HARRIER ARMAMENT System.	15 Jun 72	All PMBR's carried on AV-8A aircraft.
ISEB 203 REV A	25 May 68	MK 7 Bomb Trailers, Termination of use	This ISEB Cancels and supersedes reference A (ISEB No. 203) and promulgates revised test and inspection criteria as cited in reference B for MK 7 (All MODS) Bomb Trailer.	15 Jun 72	All MK 7 Bomb Trailers
SEC 2005		Large Universal Cradle, Modification of; to skid, Platform MHU-125/E	Provide handling and loading capability for both conventional and nuclear weapons requirement.	15 Jun 72	MHU-65/E Large Universal Cradle



1-28. CONVENTIONAL WEAPONS CHECKLIST. The conventional weapons checklists are a positive approach to improve safety and reliability in the handling and loading, of conventional airborne weapons/stores. Each checklist, based on professional knowledge and experience, provides the basis for development of an efficient and sound operational procedure. The following is a list of checklists used with the AV-8A aircraft.

<u>Title</u>	<u>Publication No.</u>
Release & Control	NAVAIR 01-AV8A-75-1
Bombs Non-Retard	NAVAIR 01-AV8A-75-2
Bombs Retard	NAVAIR 01-AV8A-75-3
Fire Bombs	NAVAIR 01-AV8A-75-4
Pyrotechnics	NAVAIR 01-AV8A-75-8
Rockets/Launchers	NAVAIR 01-AV8A-75-12
CBU/Rockeye	NAVAIR 01-AV8A-75-14
Practice Bombs	NAVAIR 01-AV8A-75-16
Guns/Gun Pods	NAVAIR 01-AV8A-75-17
Fuel Tanks/Stores/ Starter Pods	NAVAIR 01-AV8A-75-18
Air Intercept Missile AIM-9	NAVAIR 01-AV8A-75-20

1-29. STORES RELIABILITY CARD (SRC). The stores reliability card (SRC) is designed to be used by certified personnel during the high-tempo operations. The SRC is an abbreviated checklist that has the minimum number of steps required to assure a safe and reliable weapon/store load. The SRC may be used in lieu of the weapon checklist when authorized. When the SRC is authorized for use, its use is mandatory. The following is a list of SRC used with AV-8A aircraft.

<u>Title</u>	<u>Publication No.</u>
Bombs Non-Retard	NAVAIR 01-AV8A-75-2.1
MK 36 MOD 1/2/3 Destructor	NAVAIR 01-AV8A-75-2.2
Bombs Retard Fin	NAVAIR 01-AV8A-75-3.1
MK 36 MOD 0/1 Destructor	NAVAIR 01-AV8A-75-3.2
Fire Bomb MK 77 MOD 2	NAVAIR 01-AV8A-75-4.1

<u>Title</u>	<u>Publication No.</u>
Fire Bomb MK 77 MOD 4	NAVAIR 01-AV8A-75-4.2
Pyrotechnics SUU-40/44	NAVAIR 01-AV8A-75-8.1
Rockets/Launchers	NAVAIR 01-AV8A-75-12.1
CBU	NAVAIR 01-AV8A-75-14.1
Rockeye	NAVAIR 01-AV8A-75-14.2
Practice Bombs PMBR	NAVAIR 01-AV8A-75-16.1
Fuel Tanks/Stores/ Starter Pods	NAVAIR 01-AV8A-75-18.1
Air Intercept Missile, AIM-9	NAVAIR 01-AV8A-75-20.1

1-30. DISTRIBUTION OF CHECKLISTS AND SRC. Request for automatic distribution should be submitted on NAVWEPS Form 5605/3 to the Command Officer, Naval Air Technical Service Facility (NATSF), Robbins Avenue, Philadelphia, Pennsylvania 19111.

1-31. NAVAIR 01-700. Conventional/Nuclear Weapons Checklist/SRC/LOADING and Supplemental Manual Quarterly Index is a tabular listing of loading manuals, checklists, stores reliability cards (by type aircraft), and latest changes and dates. The federal stock number (FSN) of items listed is also included. Requests for automatic distribution quantities should be submitted on NAVWEPS Form 5605/3 to NATSF. Information concerning distribution can be obtained from NATSF via telephone. For initial outfitting, call Autovon 442-4113; for automatic distribution, 442-2930; for customer service, 442-3321.

#### 1-32. ORDERING PUBLICATIONS.

1-33. Publications required may be ordered on DOD Single Line Item Requisition System Document (DD Form 1348) in accordance with the Military Requisitioning and Issue Procedure (MILSTRIP). Letter type technical directives should be ordered by title and number on NAVAIR Form 140 on DD Form 1149. Requisitions for both technical manuals and technical directives should be submitted to Supply Point, Commanding Officer (1051), Naval Publication and Forms Center, 5801 Tabor Road, Philadelphia, Pennsylvania 19120.







## SECTION II

### DESCRIPTION

#### 2-1. INTRODUCTION.

2-2. This section describes the capabilities and operation of the weapon/store system for the AV-8A aircraft. The AV-8A aircraft is equipped to carry an assortment of conventional weapons/stores. Missiles (AIM-9 series) can be carried on the two outboard wing pylons (one per stations 1 and 5). There are two fuselage mounted gun pods (30MM) and five weapon stations on which armament and external stores may be carried. Rocket pods may be carried from wing stations 1, 2, 4 and 5. Practice multiple bomb racks (PMBR) may be carried on wing stations 1, 2, 4 and 5. Bombs can be carried on all five stations, and fuel tanks can be installed on stations 2 and 4.

2-3. Illustration showing the location of the weapon/store system components are provided. This section also includes illustrations, descriptions, and tables for the following:

1. Accessory equipment.
2. Weapons/stores.
3. Ground support equipment.

#### 2-4. AIRFRAME.

2-5. AIRCRAFT EXTERNAL HAZARDS. The aircraft presents certain hazards (figure 2-1) to personnel working in and around it. Ordnance loading crews should familiarize themselves with these areas and use caution in any operations required in or around the aircraft.

2-6. GROUND SAFETY DEVICES. Ground safety devices (figure 2-2) are installed immediately after aircraft flight. While it may not be the responsibility of loading crew personnel to install these devices, they must be aware of the requirement for these devices. Ordnance personnel will verify that ground safety devices are installed prior to working in or around the aircraft.

1. The following safety devices (figure 2-3) are described in the weapon/store system with which they are used.

- a. Armament safety break.
- b. Weight on wheel switch (WOW).
- c. Armament master switches.
- d. Control stick safety catch/flap.
- e. Bombs/Rockets Sidewinder switch.

2. The armament fuses and relays employed in the aircraft armament and Sidewinder system is listed in tables 2-1 and 2-2. (figure 2-4) It should be noted that the fuses are in four locations and that, in three of the locations, the fuse numbering start at 1.

2-7. EXTERNAL POWER AND GROUNDING. For ground operations, when the engine is not running, external electrical power is connected to the external power receptacle (figure 2-5). The external electrical unit supplies regulated power to the aircraft electrical buses. When the armament safety break key is removed, weight on wheel switch (WOW) actuated, and the armament masters switches are on, a dc power source is available on the weapons control panel. Ground aircraft with low resistance conductor connected between aircraft grounding point and an approved common ground (figure 2-5). The use of tie-down chains to provide aircraft ground is authorized and is preferred over the use of grounding straps or wires. The tie-down chains, grounding strap or wire must be attached to an unpainted surface of the aircraft and to a certified ground eyelet or a common static earth ground.

#### 2-8. AIRCRAFT ARMAMENT SYSTEMS.

2-9. The aircraft armament system consists of the following systems and subsystems:

1. Bomb/Rocket System (paragraph 2-10).
2. 30MM Aden Gun System (paragraph 2-24).
3. Missile Control System (AIM-9) (paragraph 2-35).
4. Jettison System (paragraph 2-45).

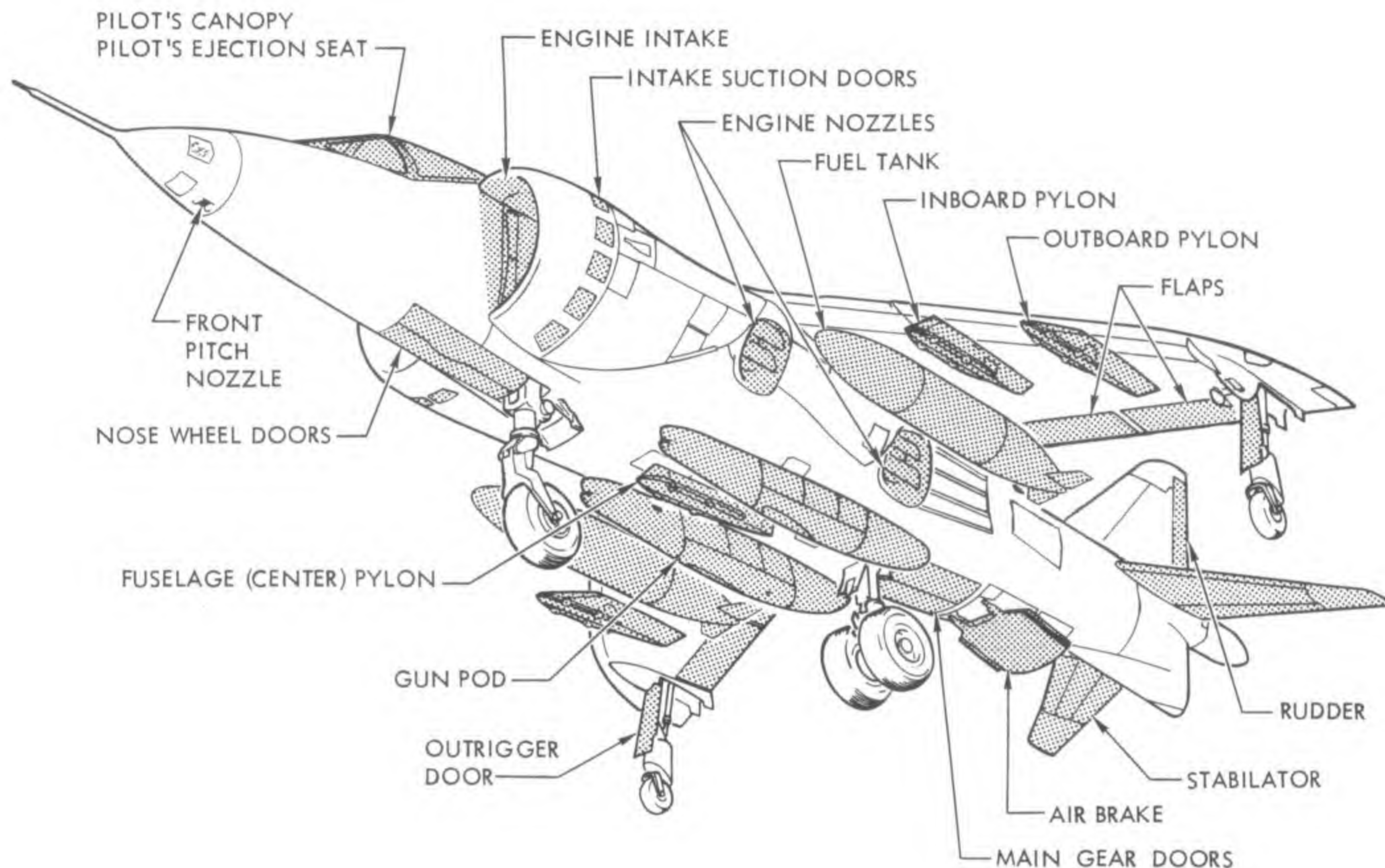
#### 2-10. BOMB/ROCKET SYSTEM.

2-11. The bomb/rocket system is to provide AV-8A aircraft with suspension and release capabilities for various conventional weapons and airborne stores (figure 2-6).

1. Bombs/Destructors.
2. Rockets
3. CBU's
4. Flares
5. Tanks

2-12. Controls required for operation of the bomb/rocket system are provided by a weapon control panel (WCP) mounted below the port instrument panel, the armament master switches located on the Sidewinder control panel, the battery switches, and the safety flap (bomb/rp) and bomb release button located on the control stick grip (figure 2-7).





### WARNING

PERSONNEL SHOULD REMAIN CLEAR OF AREAS INDICATED WHILE POWER IS ON AIRCRAFT OR ENGINE IS OPERATING.

AVOID TIRE AREA IF OVERHEATED BRAKES ARE SUSPECTED, IF NECESSARY TO APPROACH TIRE AREA, PROCEED CAUTIOUSLY AND ONLY FROM A FORE AND AFT DIRECTION. EXTREME DANGER EXISTS EVEN AFTER AIRCRAFT HAS STOPPED BECAUSE OF THE TIME REQUIRED FOR THE HEAT TO TRAVEL FROM THE BRAKES TO THE TIRE.

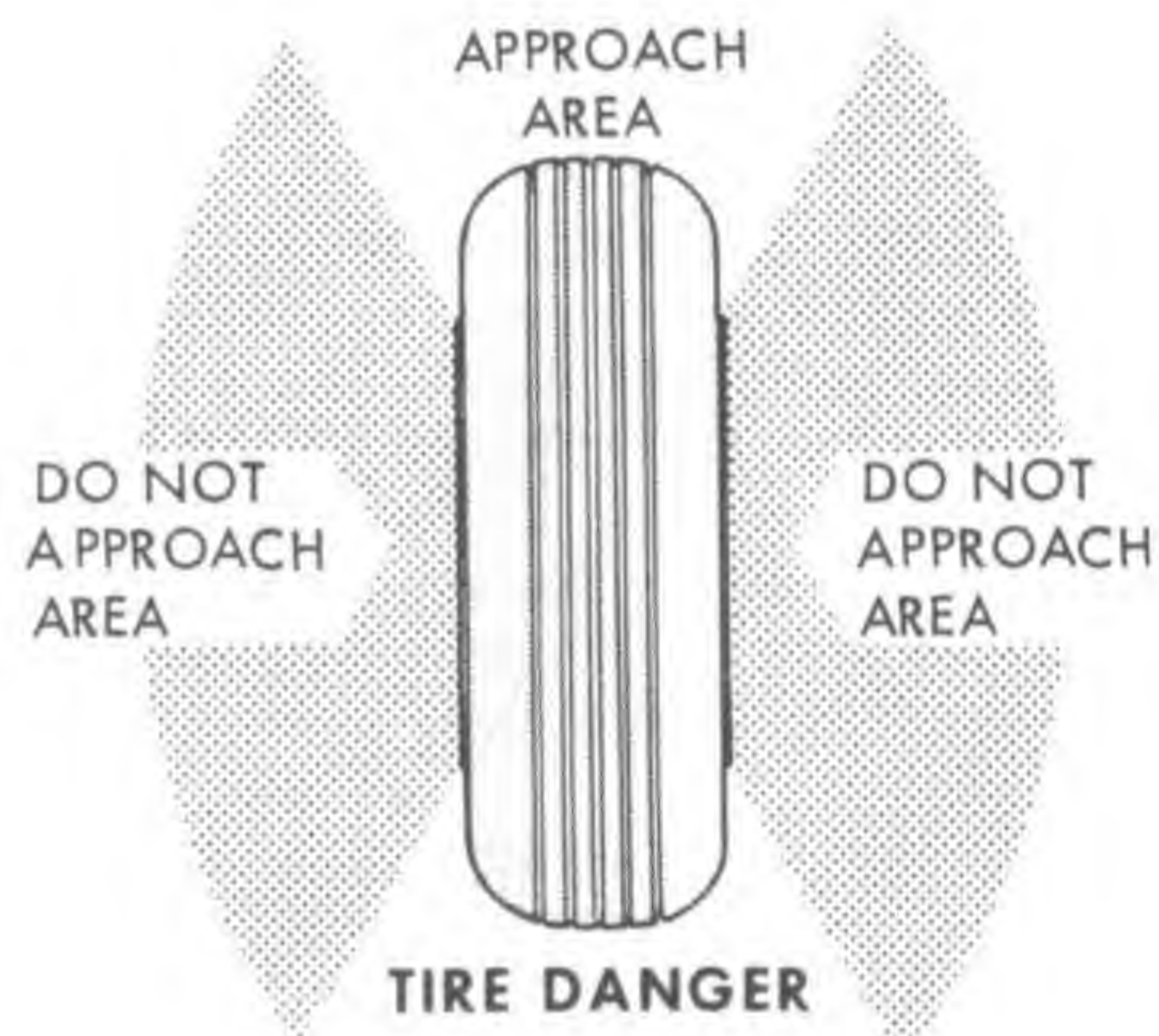
PERSONNEL SHOULD STAY CLEAR OF RF RADIATION HAZARD ZONES. ALL RF TRANSMITTING EQUIPMENT SHOULD BE TURNED OFF WHEN ELECTRO-EXPLOSIVE DEVICES (EED) ARE IN THE AREA.

### CAUTION

ALL ARMAMENT AND MUNITIONS ARE CARRIED EXTERNALLY. AREAS TO THE FORE AND AFT OF ALL MISSILES AND/OR ROCKET PODS, AND DIRECTLY FORWARD OF ALL GUN PODS, MUST BE CONSIDERED POTENTIALLY DANGEROUS AREAS. AIRCRAFT CARRYING MUNITIONS WILL BE LOADED, UNLOADED, AND/OR PARKED IN DESIGNATED EXPLOSIVES PARKING AREAS.

### NOTE

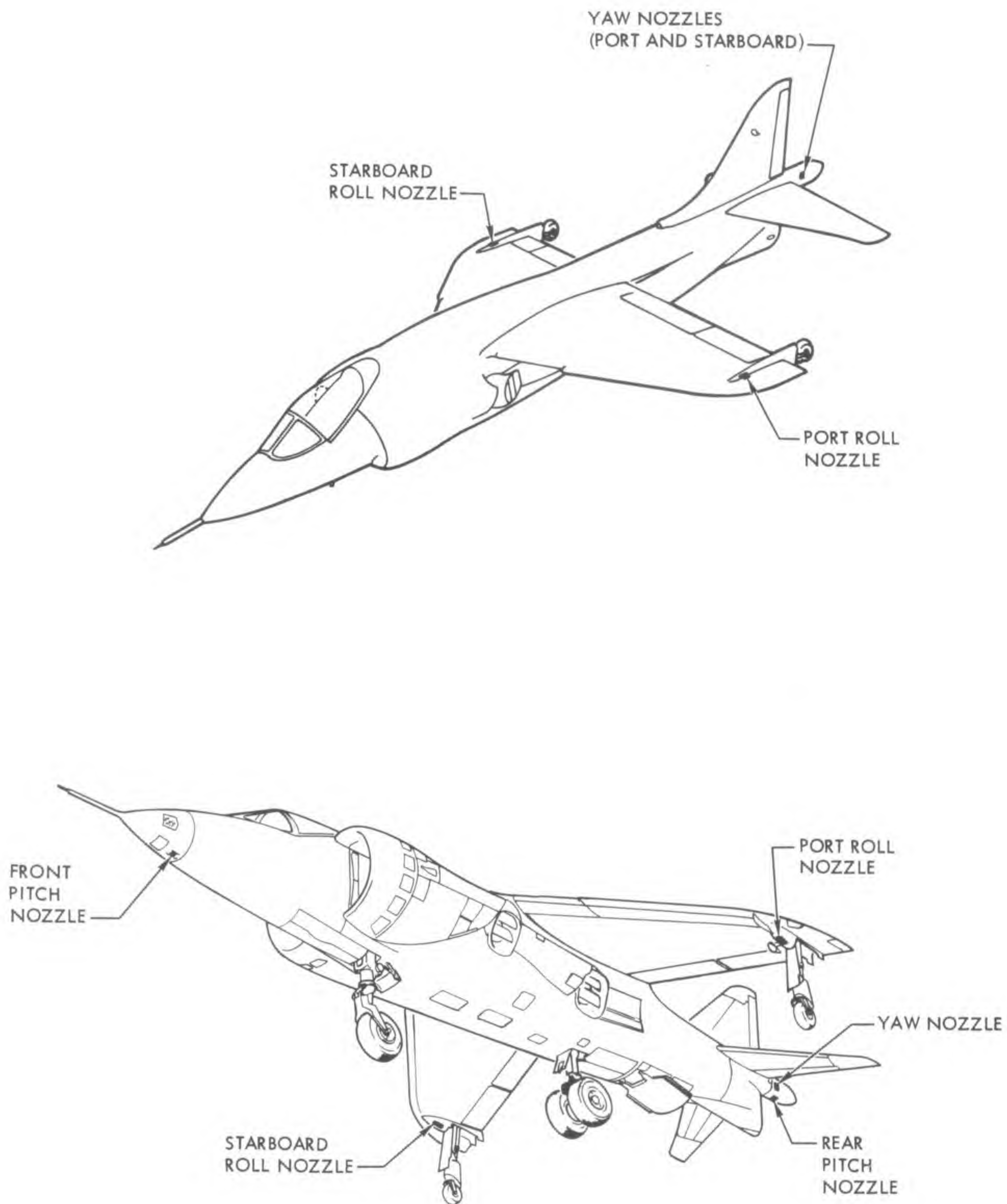
EXTERNAL FUEL TANKS, CONVENTIONAL MUNITIONS, RACKS, AND/OR MISSILE LAUNCHERS ATTACHED TO THE WING PYLON STATIONS OR TO THE CENTERLINE (FUSELAGE) PYLON ARE DROPPABLE WHEN EXPLOSIVE CARTRIDGES ARE LOADED. IMMEDIATE AREAS MUST BE CONSIDERED DANGEROUS FOR PERSONNEL.



AV8A-75-(25-1)

Figure 2-1. Aircraft External Hazards (Sheet 1 of 3)

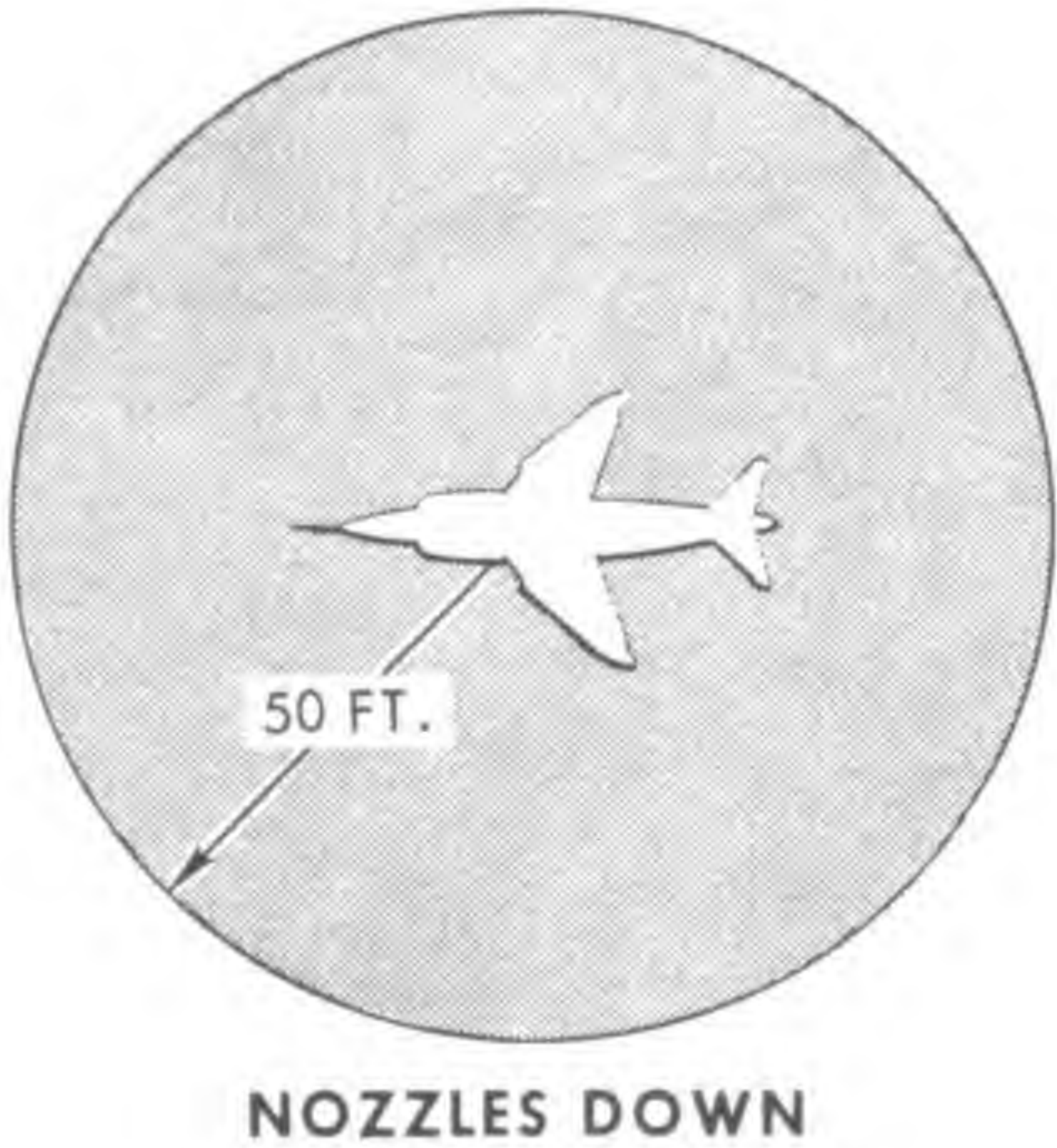
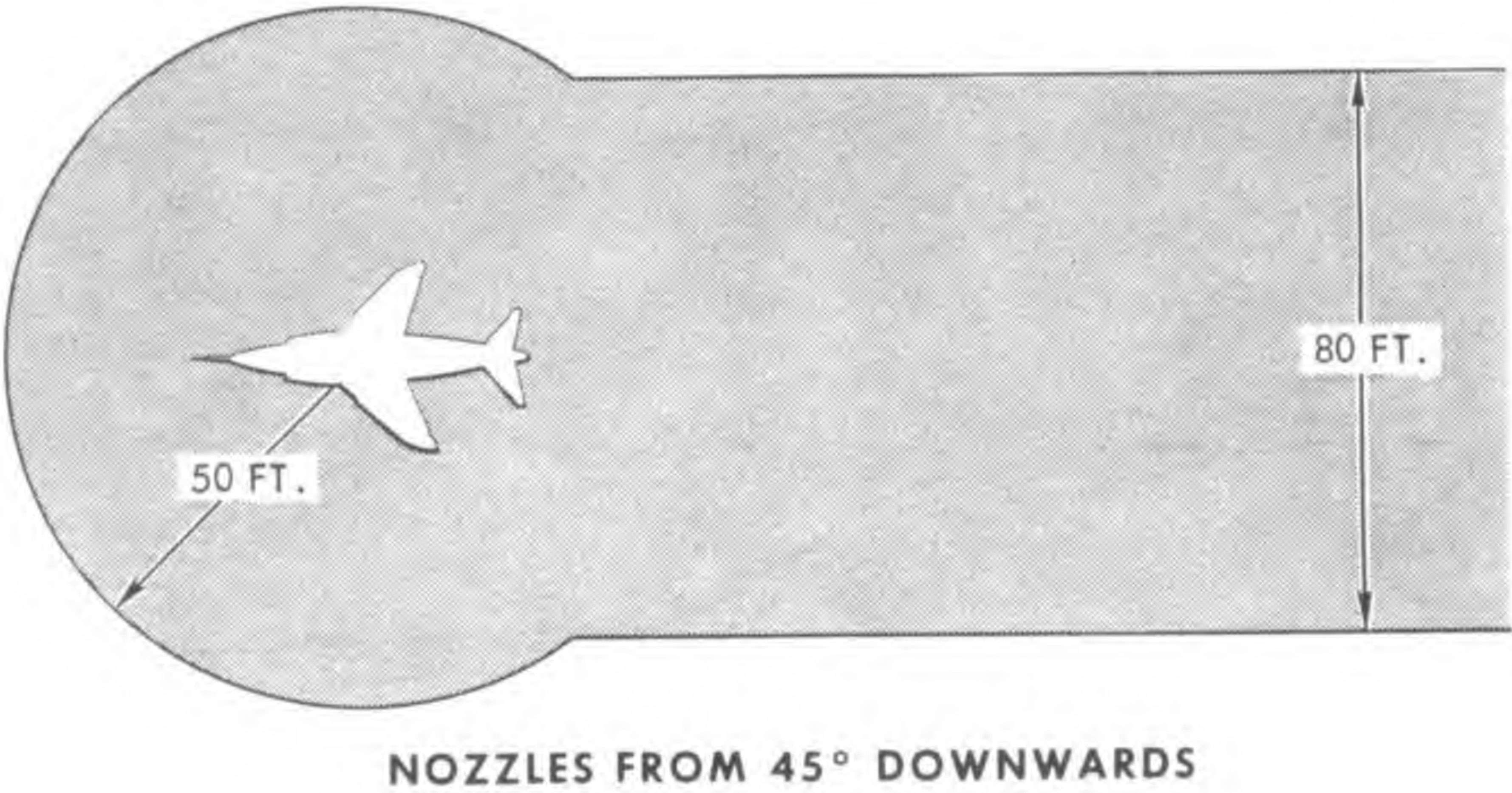
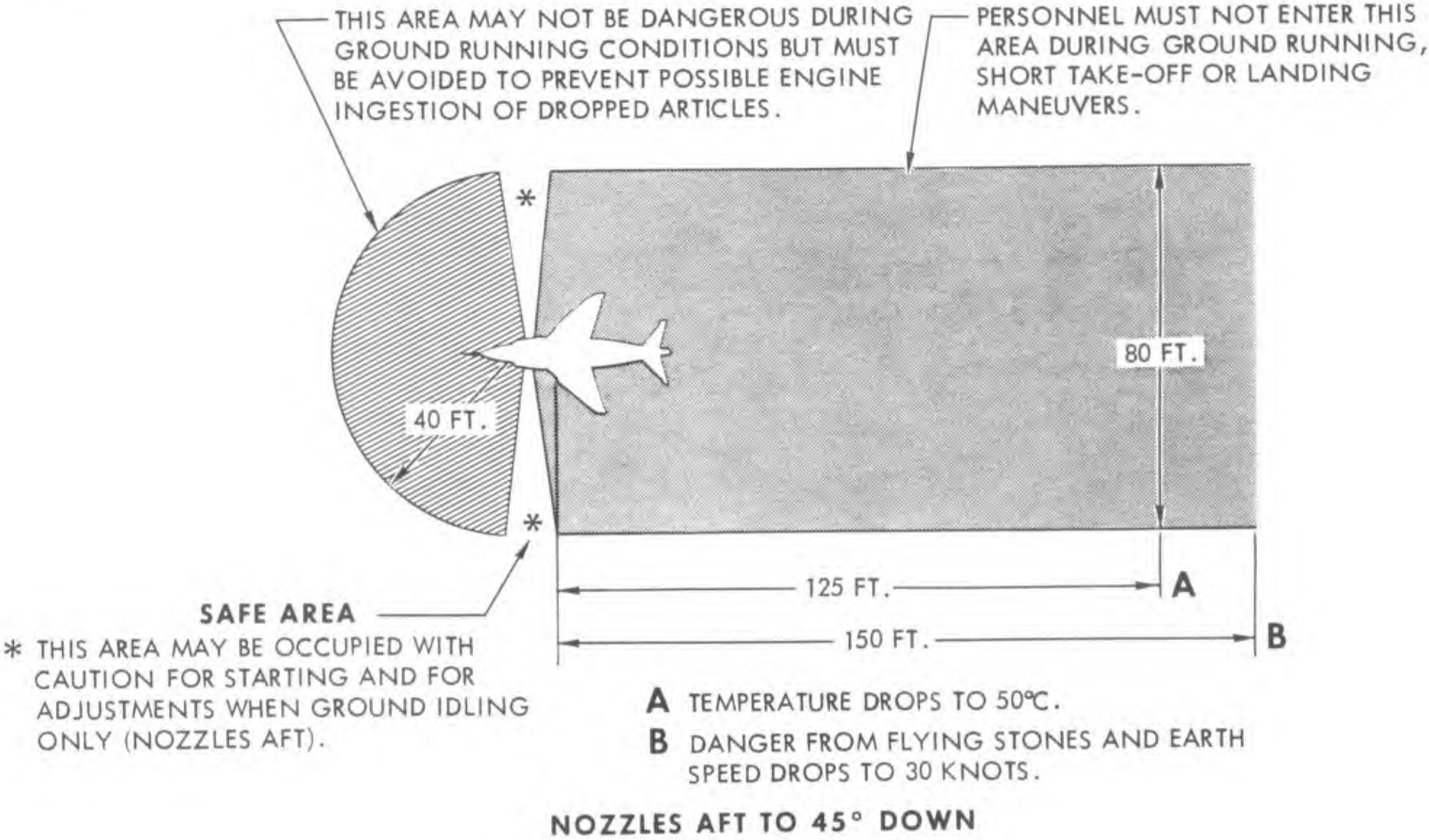




AV8A-75-(25-2)

Figure 2-1. Aircraft External Hazards (Sheet 2 of 3)





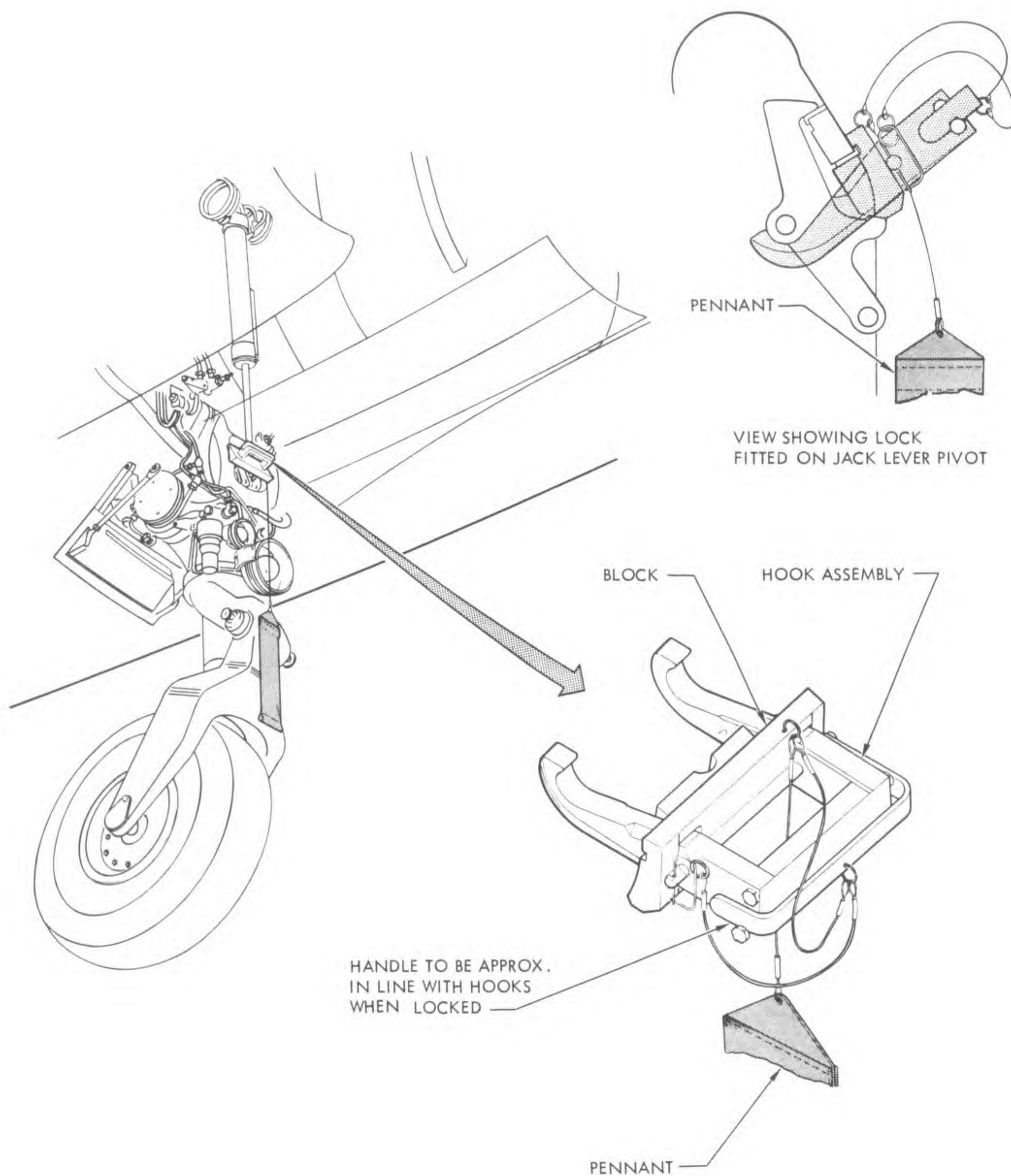
**NOTE**

PERSONNEL SHOULD AVOID BEING OUT OF THE PILOT'S VIEW DURING VERTICAL TAKE OFF, VERTICAL LANDING OR HOVERING UNLESS THEY ARE BY A FIXED OBSTRUCTION KNOWN TO THE PILOT.

LEGEND	
	WARM AREA
	COOL AREA

Figure 2-1. Aircraft External Hazards (Sheet 3 of 3)



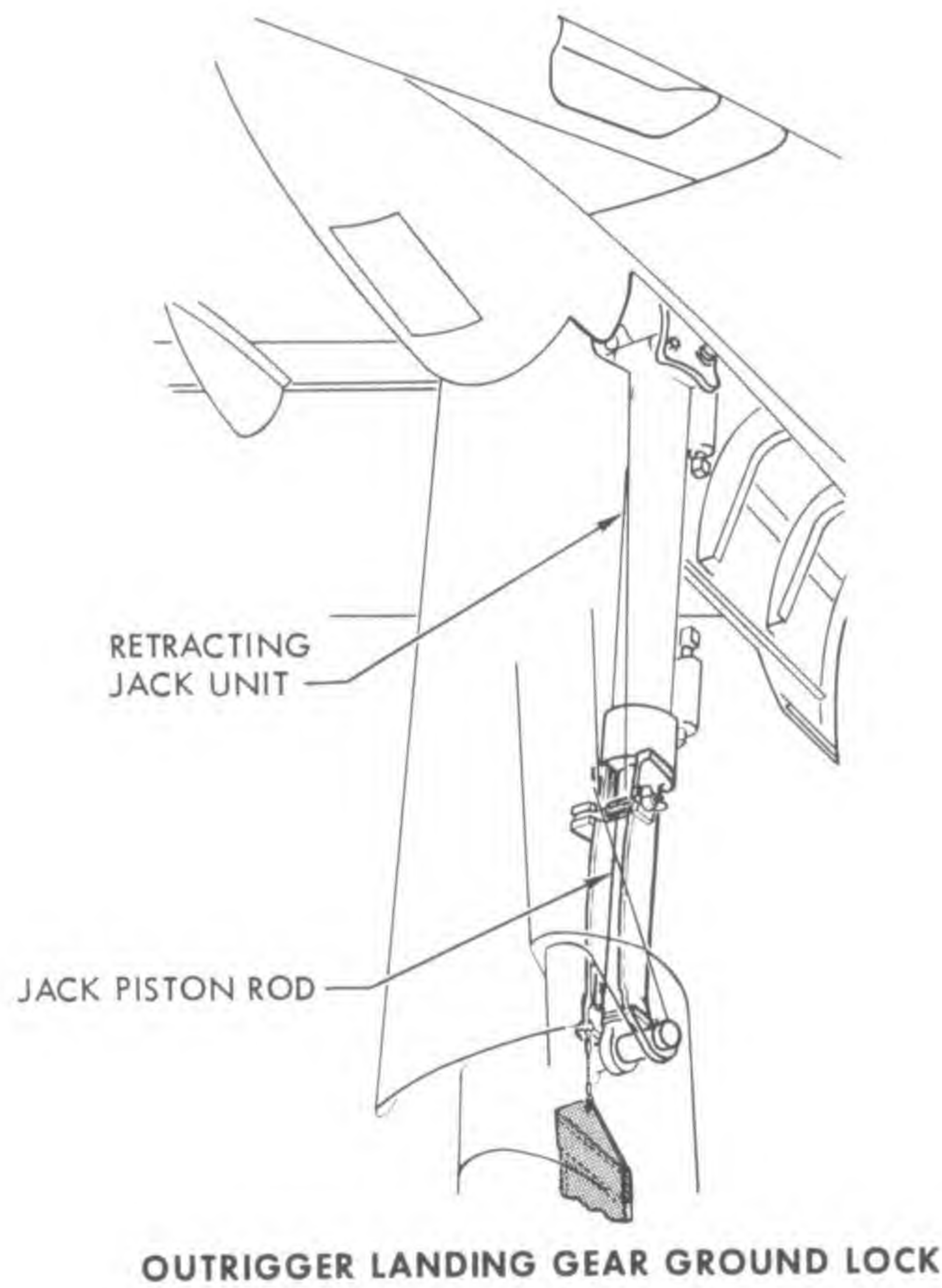
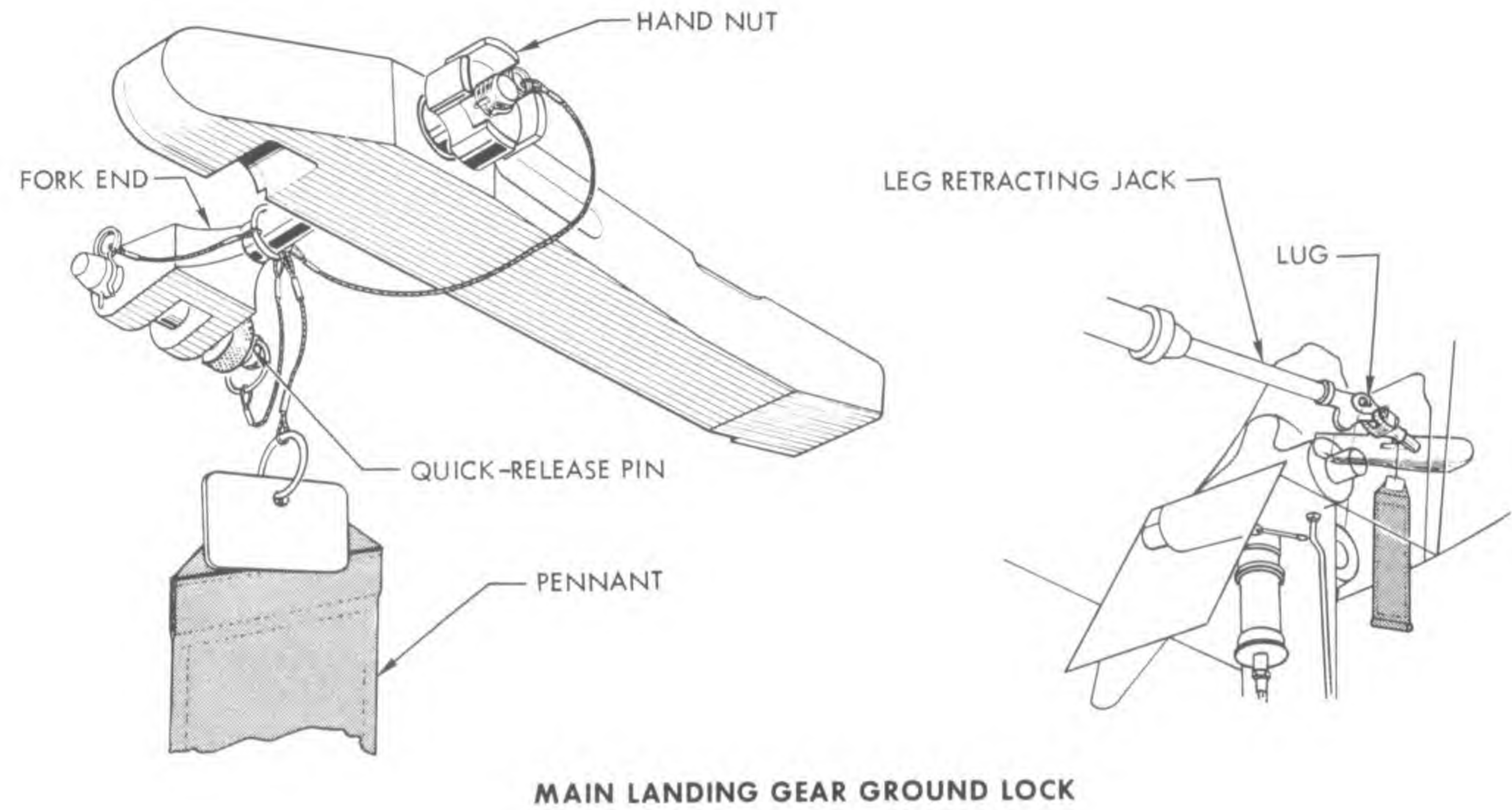


**NOSE LANDING GEAR GROUND LOCK**

AV8A-75-(24-1)

Figure 2-2. Ground Safety Devices (Sheet 1 of 5)

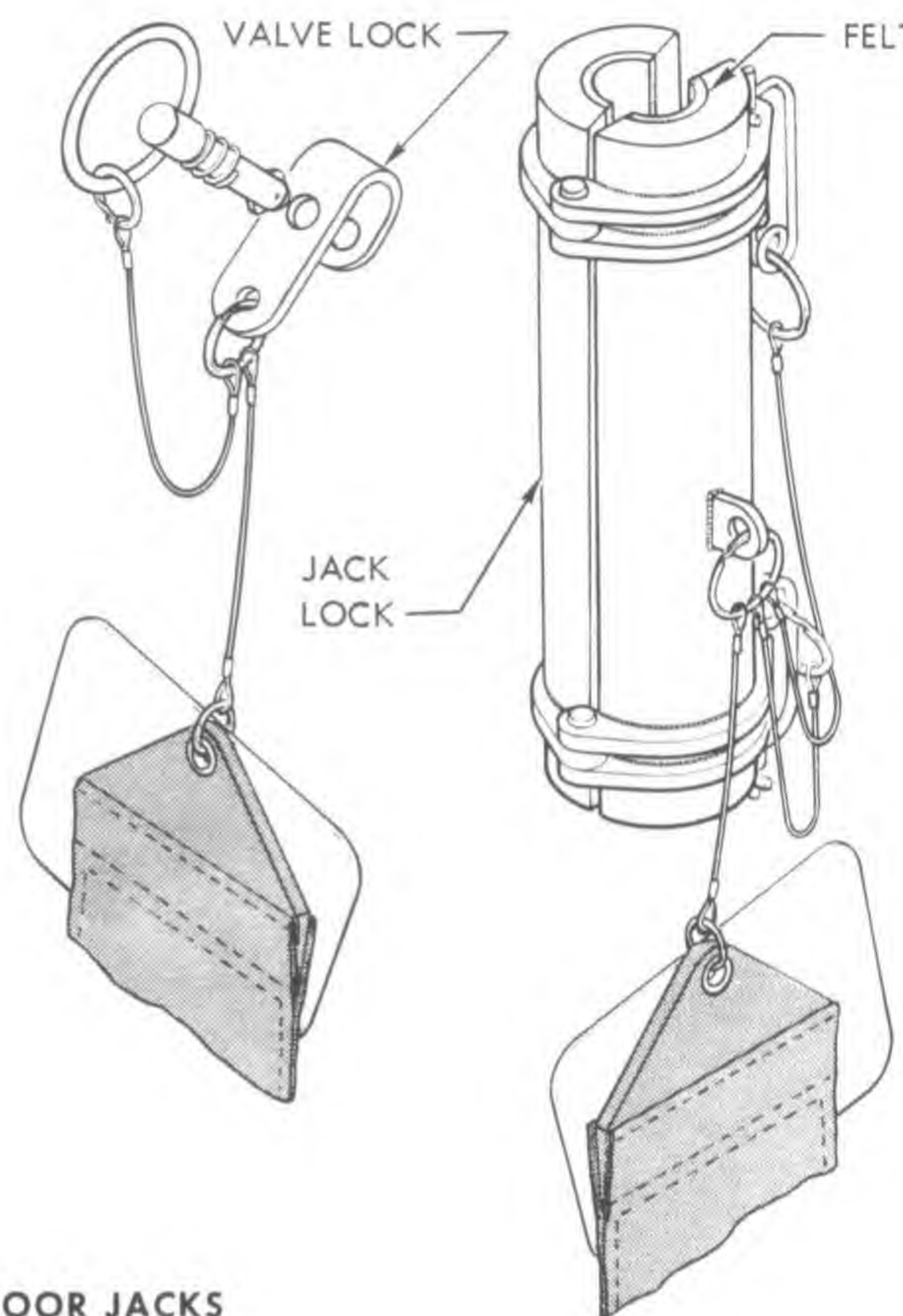
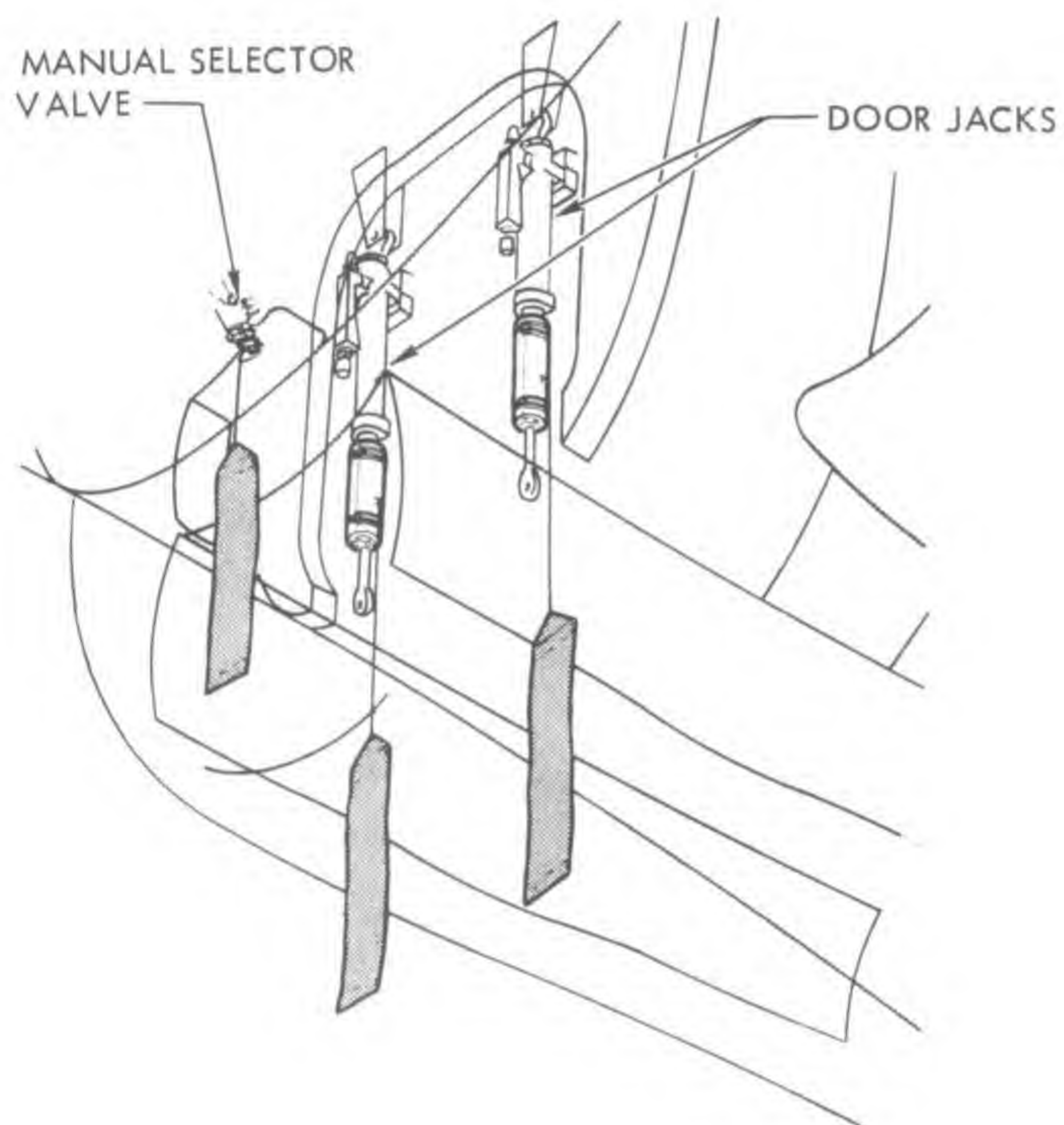




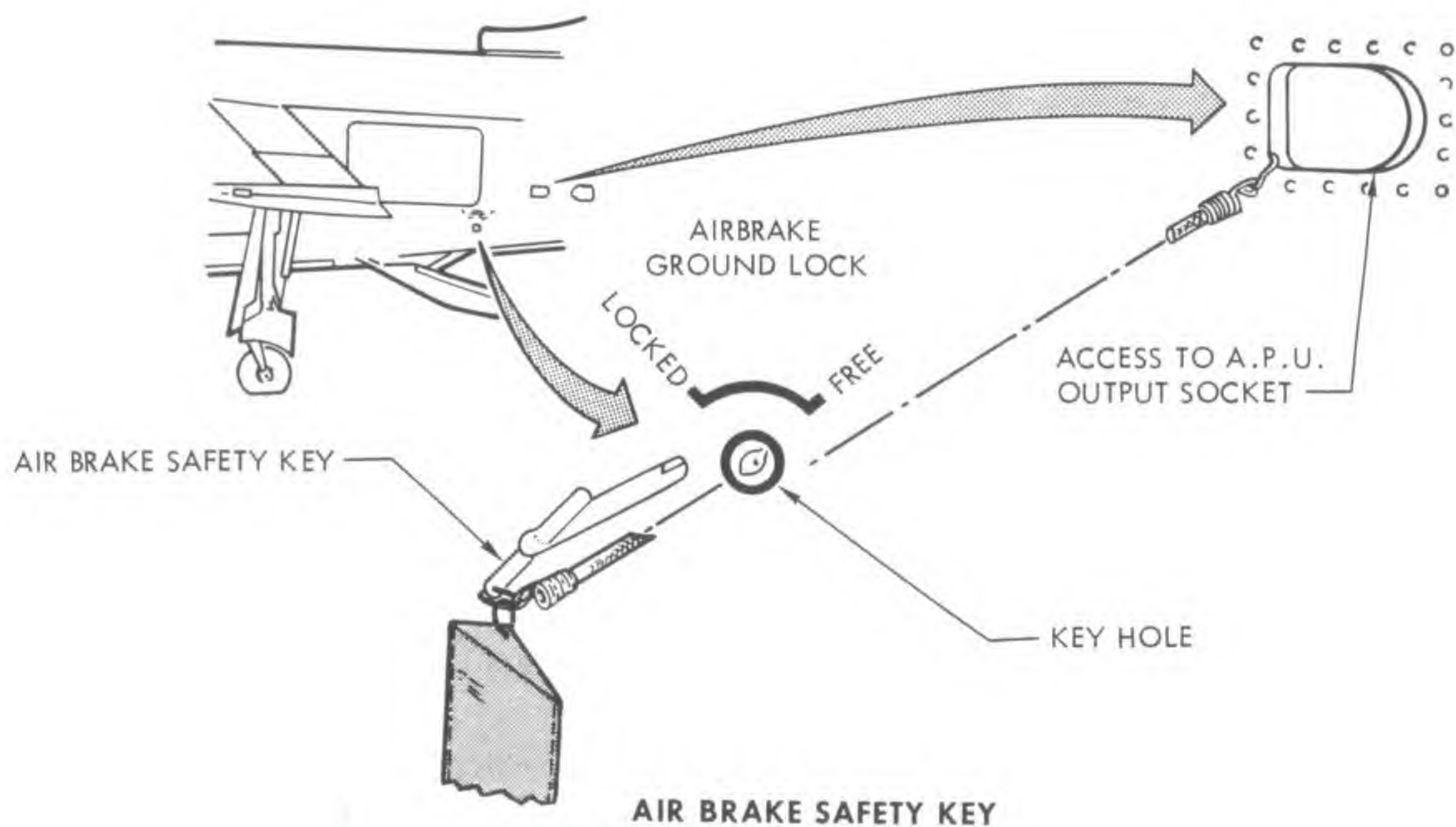
AV8A-75-(24-2)

Figure 2-2. Ground Safety Devices (Sheet 2 of 5)





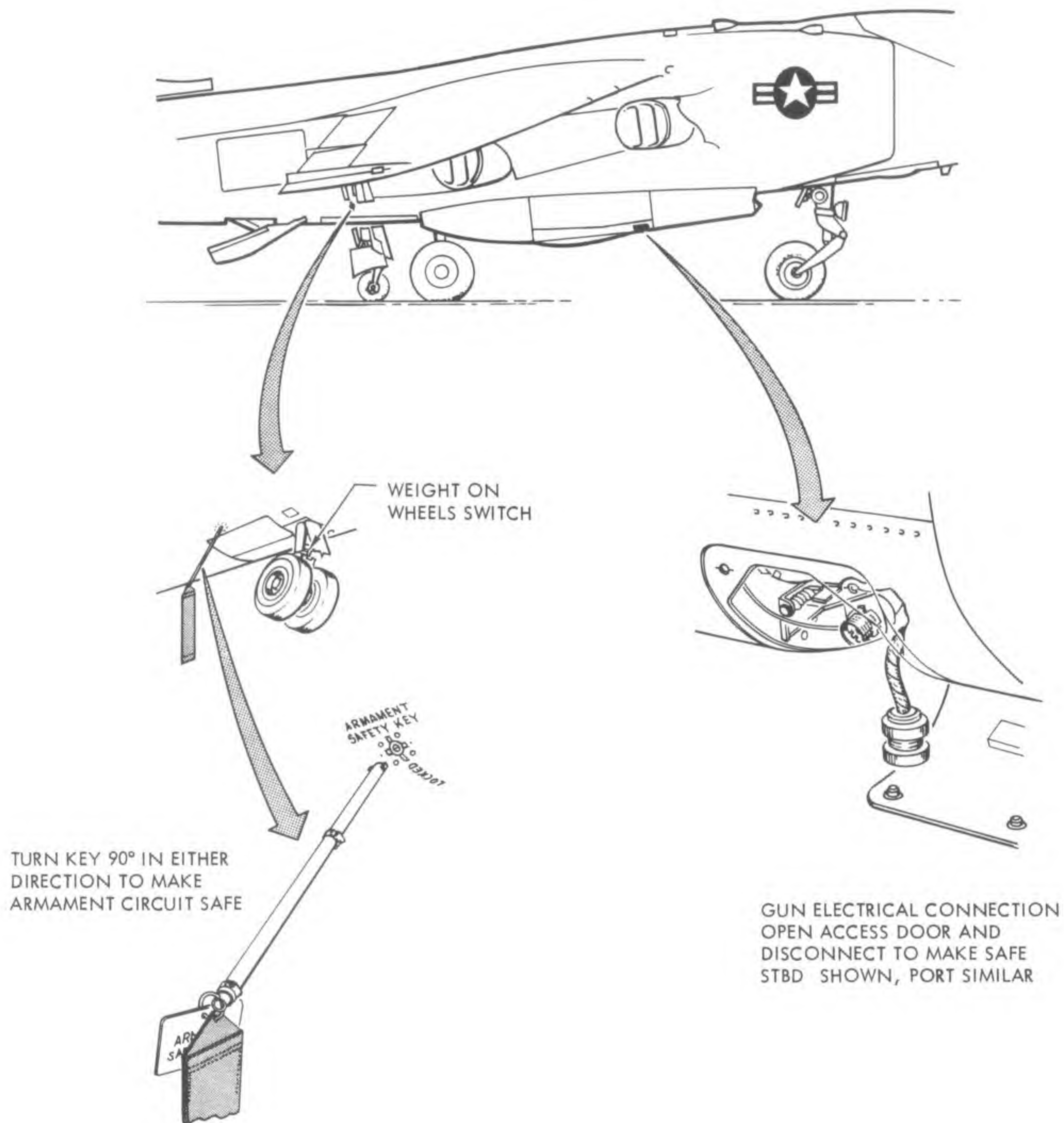
**NOSE LANDING GEAR DOOR JACKS  
AND MANUAL SELECTOR VALVE  
GROUND LOCK**



AV8A-75-(24-3)

Figure 2-2. Ground Safety Devices (Sheet 3 of 5)

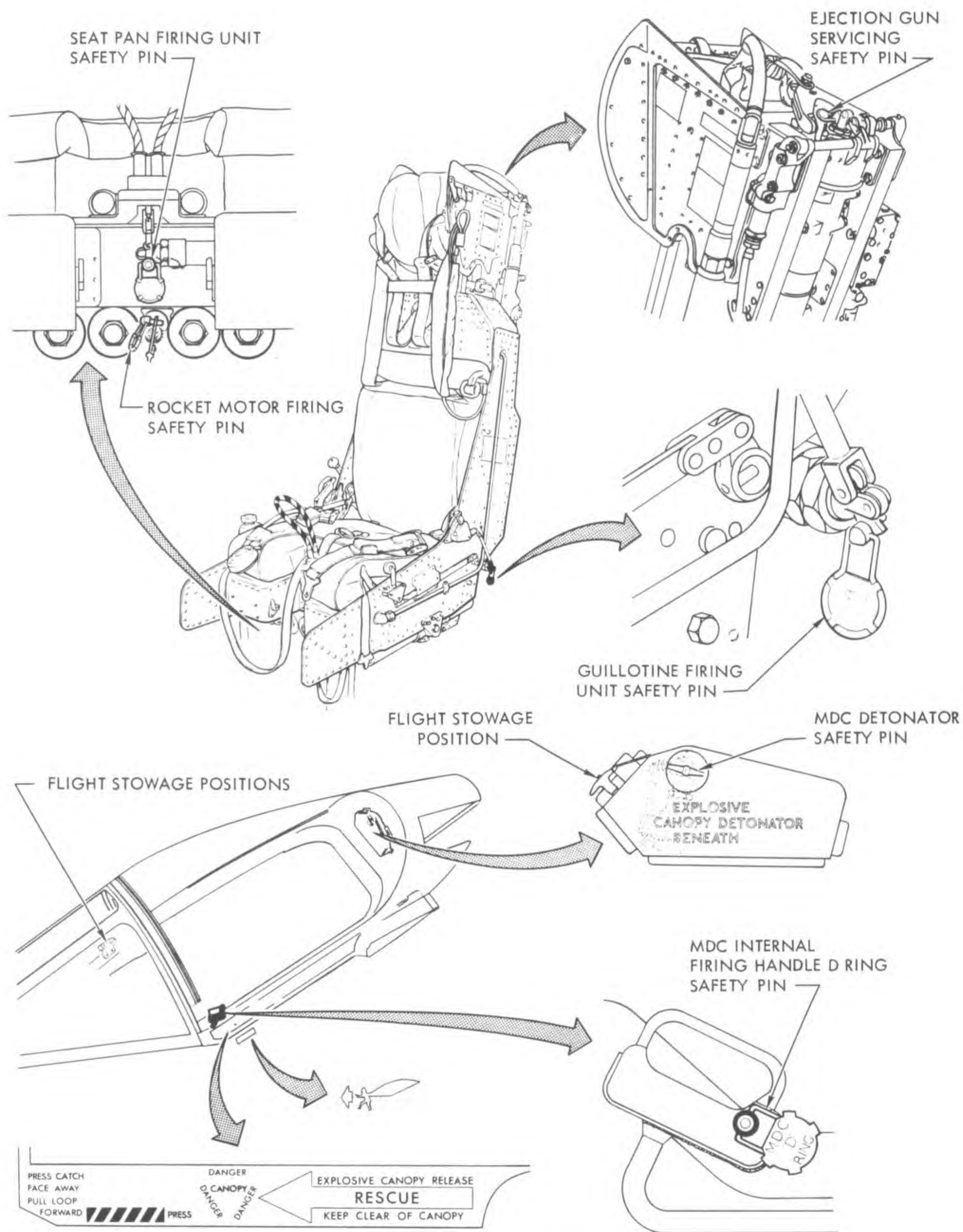




AV8A-75-(24-4)

Figure 2-2. Ground Safety Devices (Sheet 4 of 5)





### EJECTION SEAT AND CANOPY SAFETY DEVICES

AV8A-75-(24-5)

Figure 2-2. Ground Safety Devices (Sheet 5 of 5)



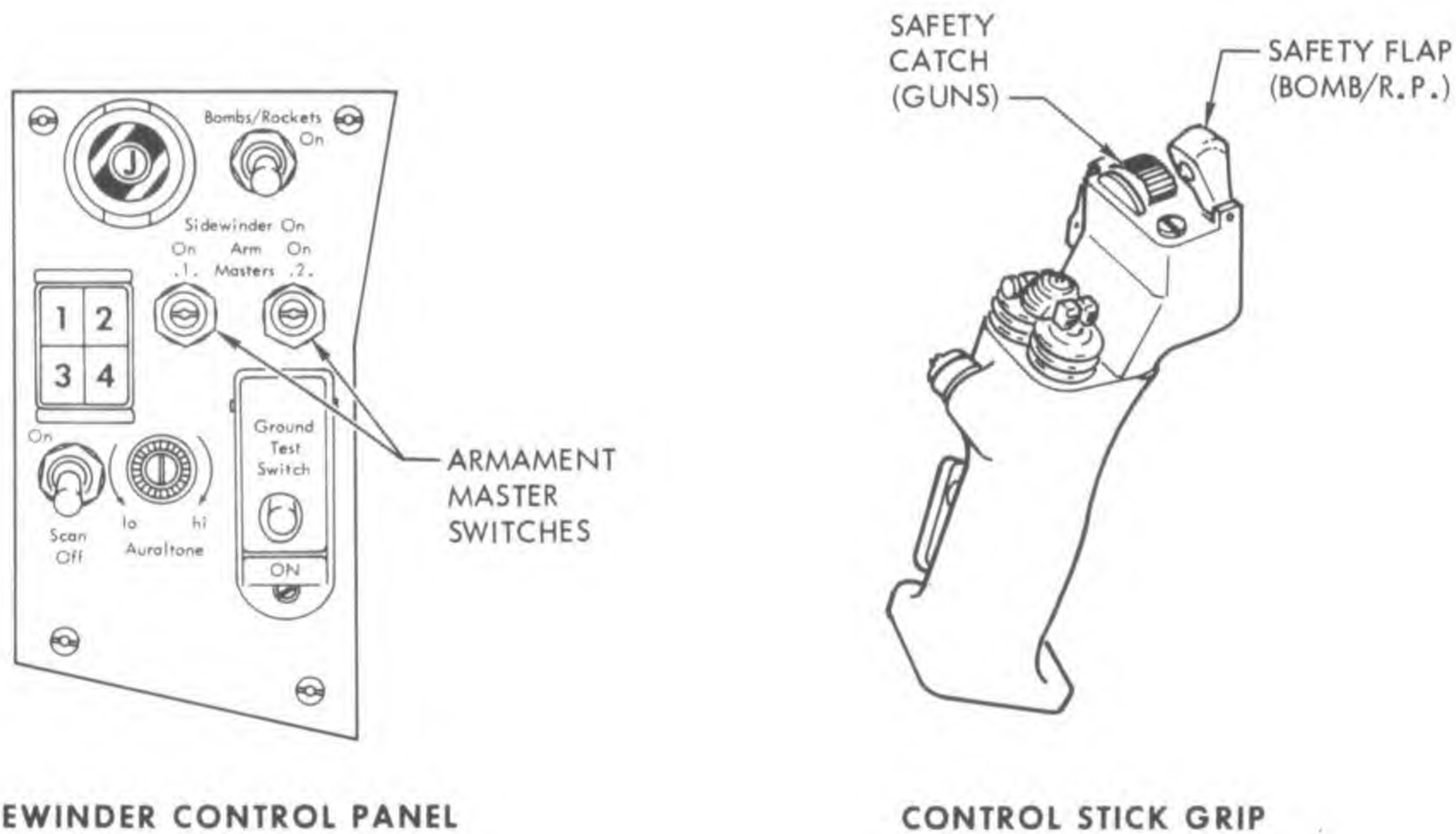
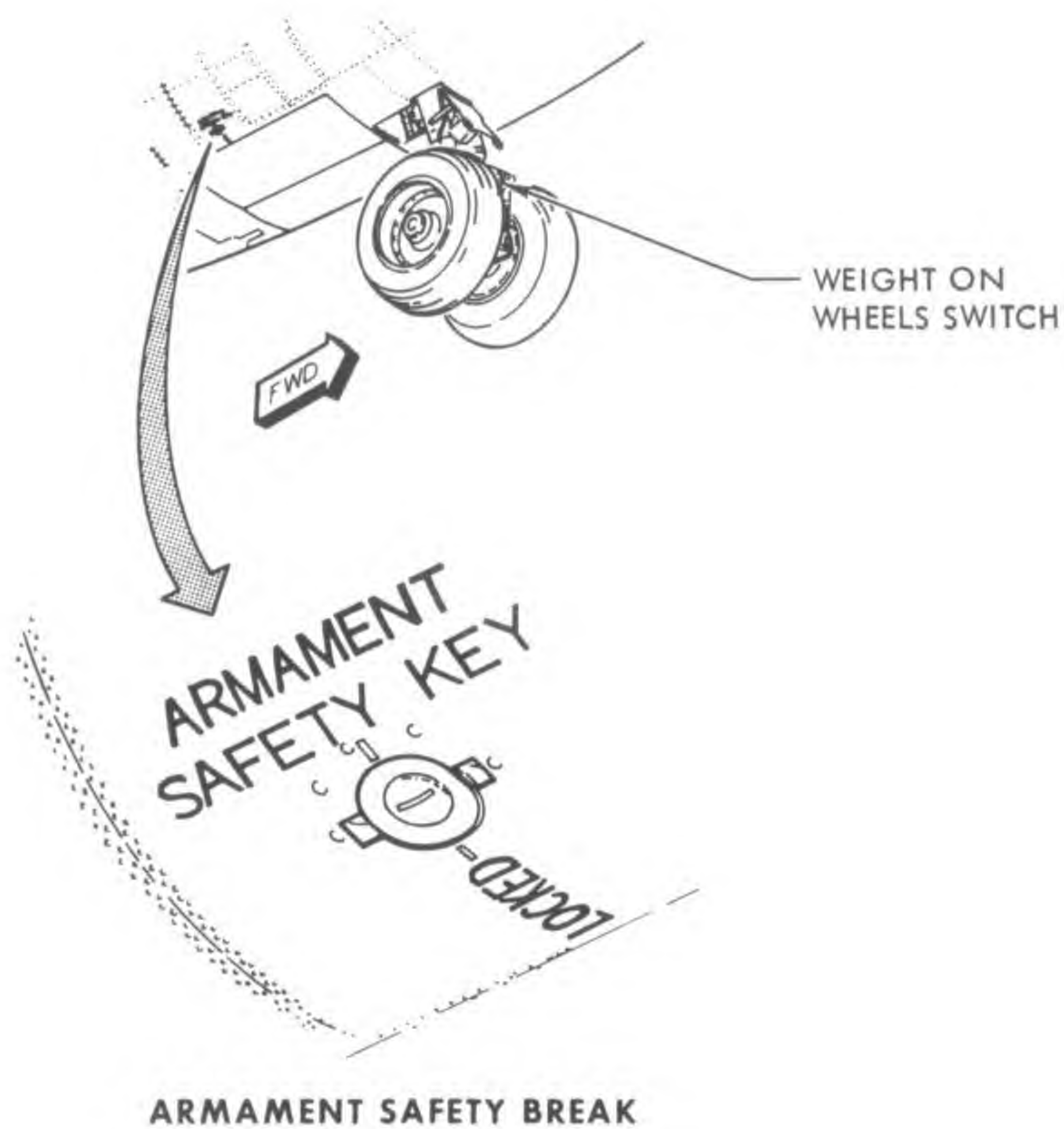


Figure 2-3. Armament Safety Switches



Table 2-1. Fuse Location

Fuse No.	Rating Amps	Service	Location
1	40	Sidewinder - No. 2 battery busbar	Sidewinder fuse panel
1	5	Sidewinder - Stbd. missiles a.c. power	Sidewinder fuse and control box
1	10	Rocket firing - Port outer	Armament safety relays box
2	40	Sidewinder - No. 1 d.c. busbar	Sidewinder fuse panel
2	10	Rocket firing - Port inner	
3	10	- Stbd. inner	Armament safety relays box
4	10	- Stbd. outer	
14	2.5	Sidewinder - SEAM	
15	5	- Port missiles a.c. power	
16	10	- Missile Control	
17	10	- Ground test switch, normal	
18	20	- Detent (launcher) and launch	
21	2.5	- Status indicator lights	
23	5	- Power interlock	
26*	20	- Stbd. inner d.c. power	Sidewinder fuse and control box
27*	20	- Port inner d.c. power	
28	20	- Port outer d.c. power	
29	20	- Stbd. outer d.c. power	
30	10	- Ground test switch, test	
403	40	Armament (No. 1 battery busbar)	
404	40	Armament and Sidewinder (No. 2 busbar)	
406	5	Sidewinder (No. 1 a.c. busbar, phase A)	Generator panel
416	5	Sidewinder (No. 1 a.c. busbar, phase B)	

\* Not required for two-missile role.



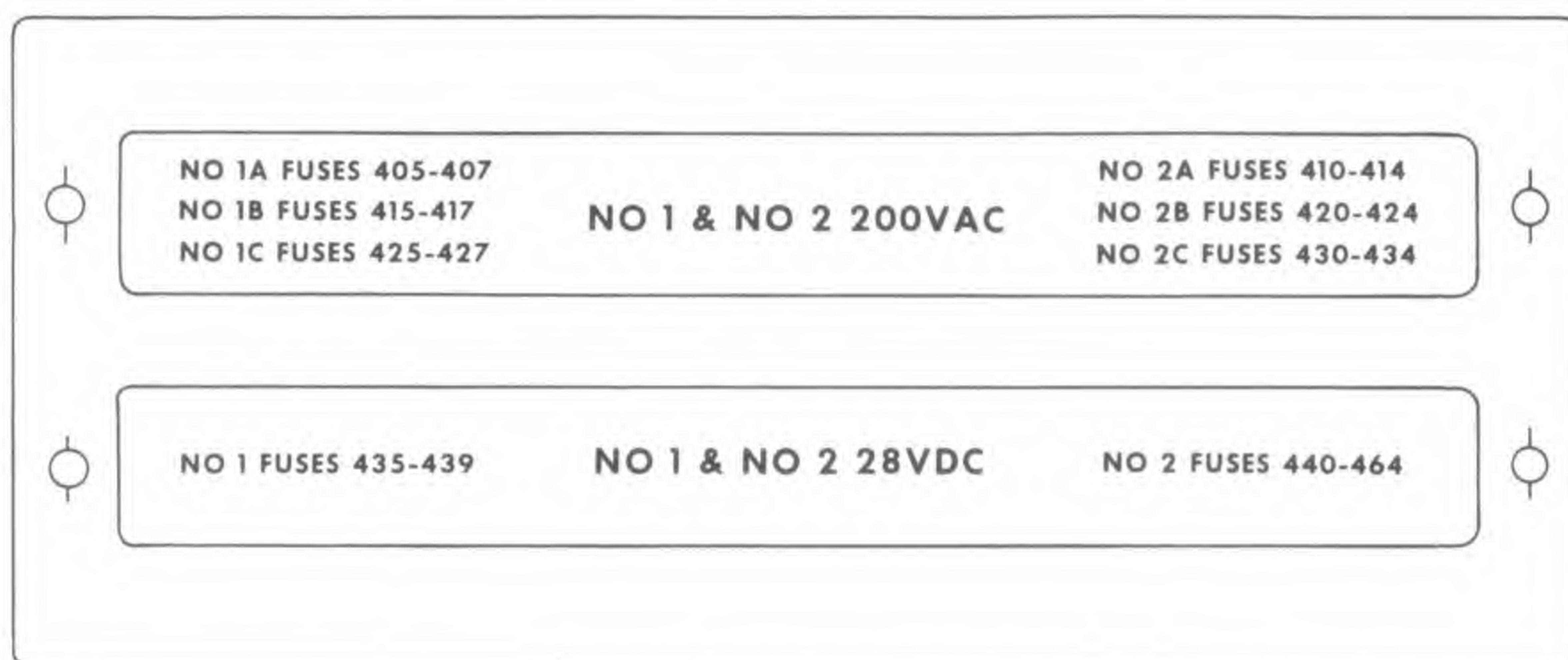
Table 2-2. Relays, Function and Location

Relay	Function	Location
	Armament	
CV	'A' release	Each pylon - armament relay junction box
CX	'B' release	
CY	RP/twin	
CZ	RP/Jettison	
	Sidewinder	
FA	Port outer launching	Sidewinder fuse and control box
FB	Port outer power interlock	
FC*	Port inner launching	
FD+	Port inner power interlock	
FE*	Stbd. inner launcher	
FF+	Stbd. inner power interlock	
FG	Stbd. outer launching	
FH	Stbd. outer power interlock	
FJ	Main jettison	
FK	Outboard and inboard jettison	
FL	Safety	
FM	Master launching	
FN	Reject	
FP	Lock-on	
FQ	Rotary selector switch solenoid operated	
FR	Sidewinder/bomb-RP mode	Sidewinder control panel
	Sidewinder	
FS	Indicator lamps - dimming	Sidewinder control panel
FT	Safety	Armament safety relay box
FU	No. 1 busbar safety	
FV	No. 2 busbar safety	
FW	Rocket Firing	
CQ	Port Gun Vent Actuator	
CQ	Stbd Gun Vent Actuator	
CN	Port Gun Selector Relay	
CO	Starboard Gun Selector Relay	
CP	Port Gun Firing Relay	
CL	Starboard Gun Firing Relay	
CM	Gun Ventilator Control Relay	Upper part of Center fuselage

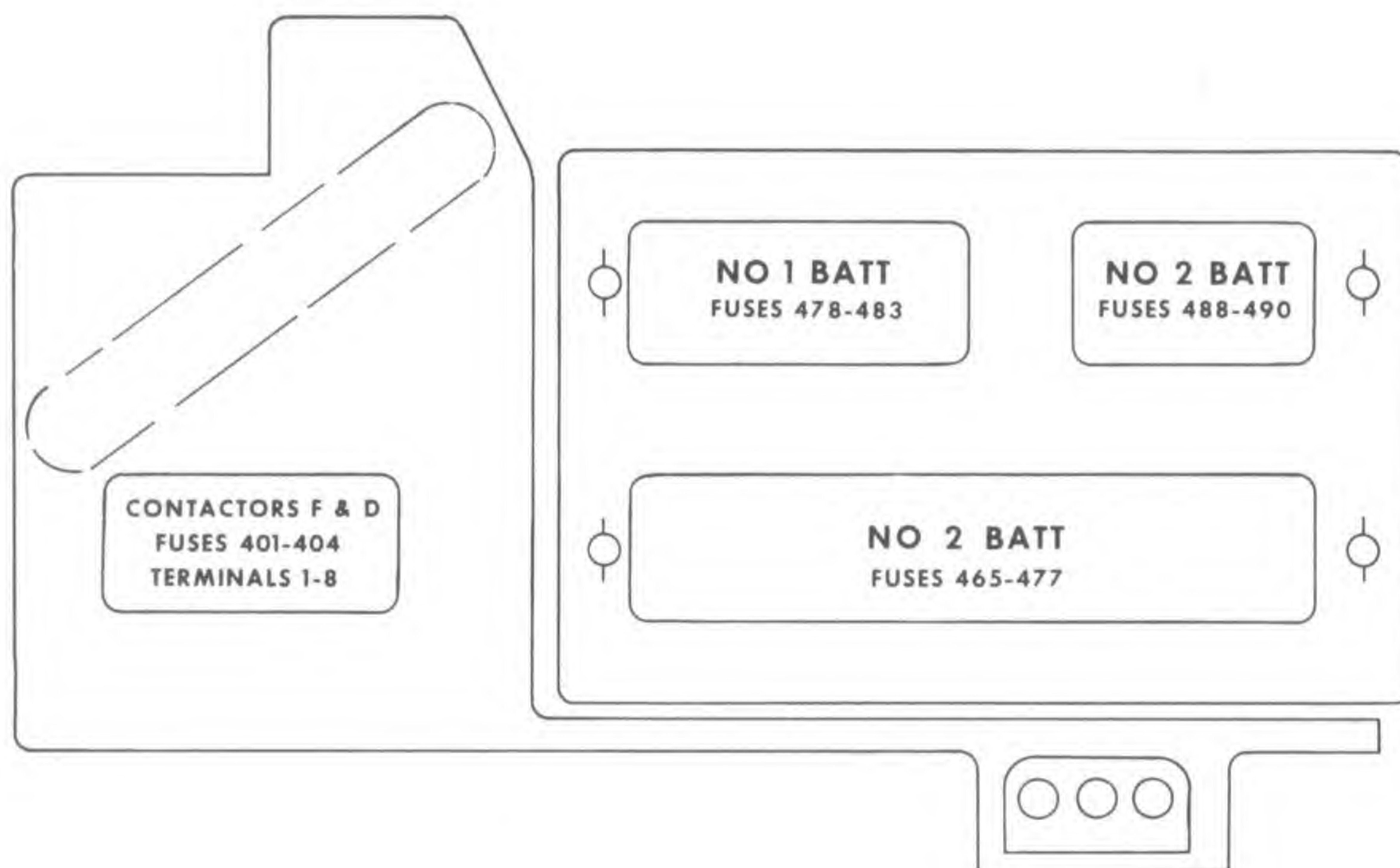
\* Not used in dual-missile capability

+ Not energized in dual-missile capability



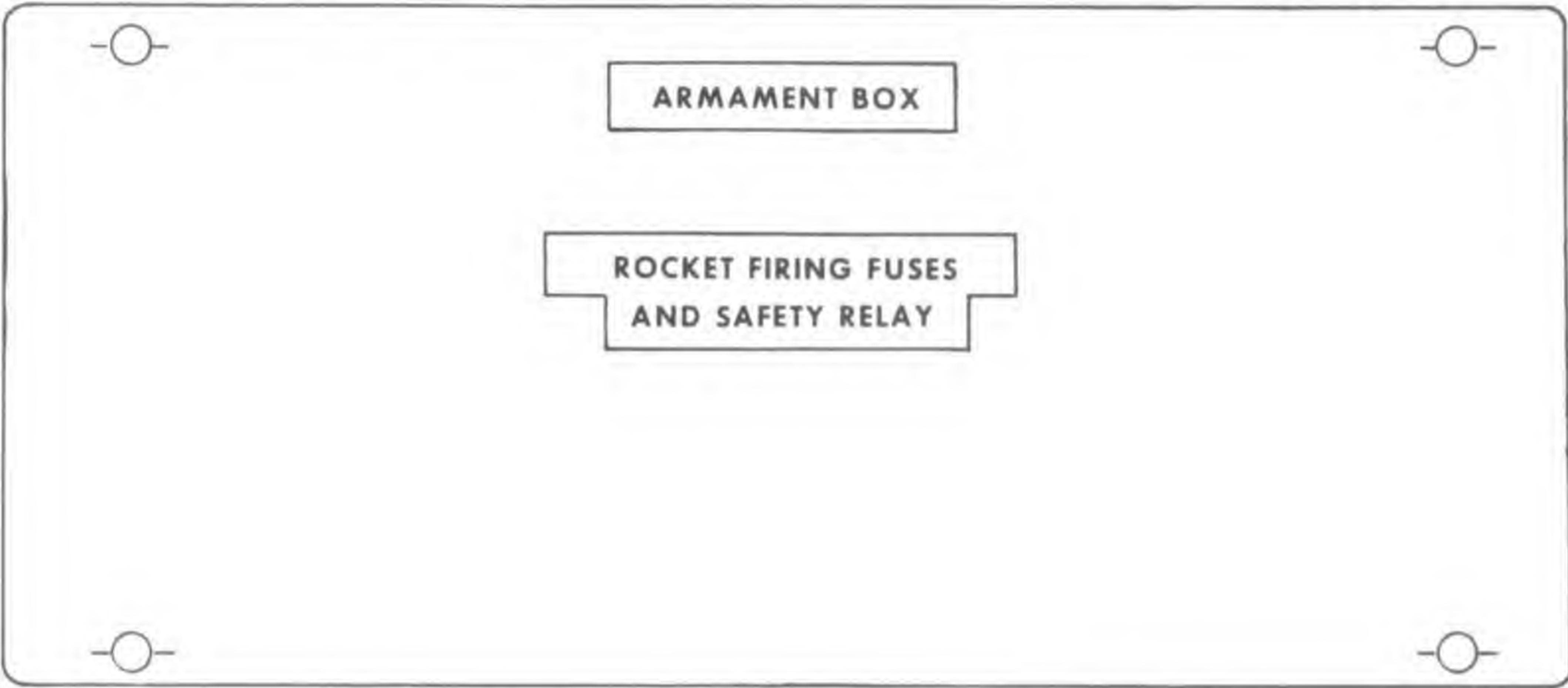


**AFT PORT EQUIPMENT BAY (TOP)**

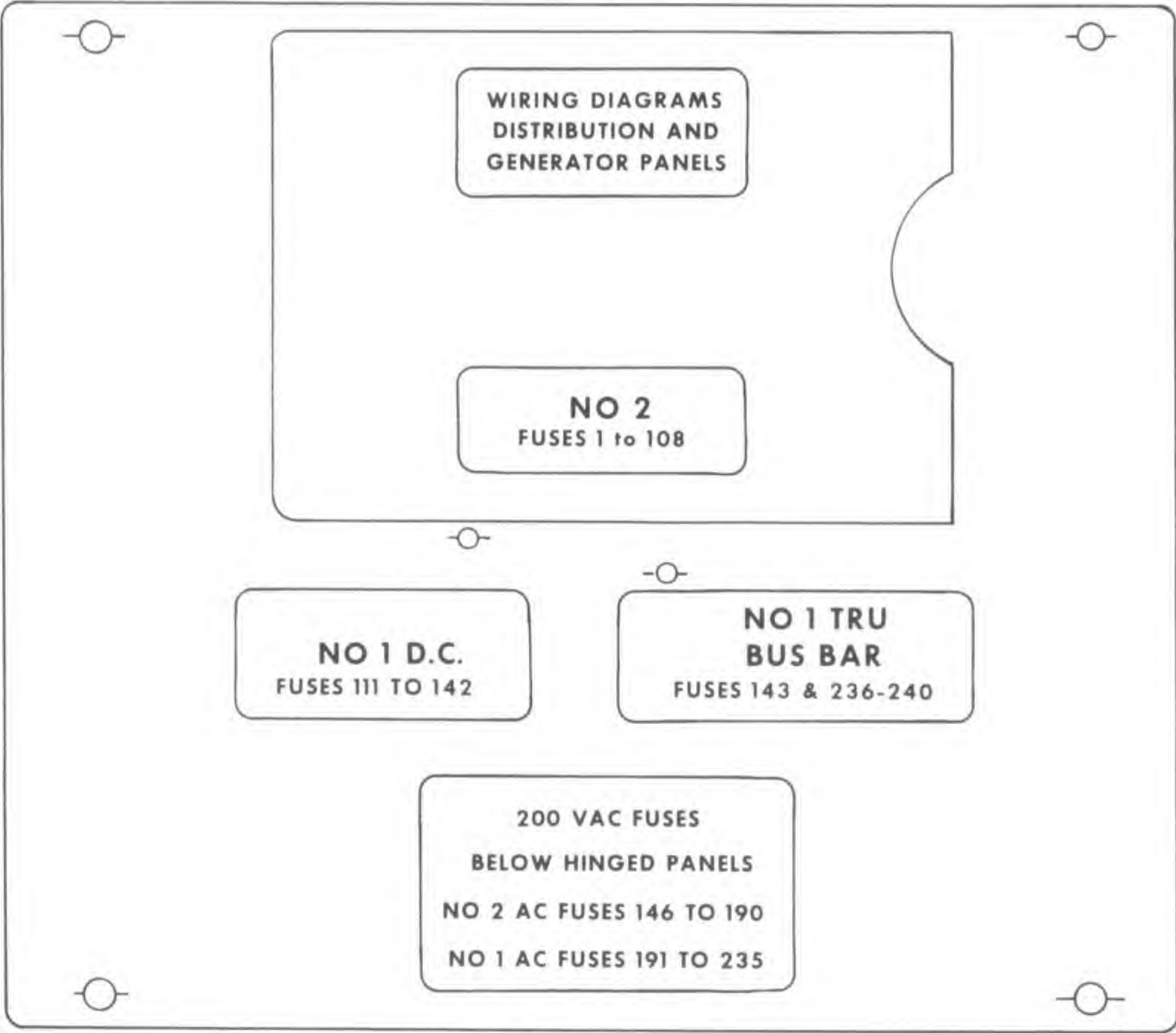


**AFT PORT EQUIPMENT BAY (BOTTOM)**





AFT STARBOARD EQUIPMENT BAY (TOP)

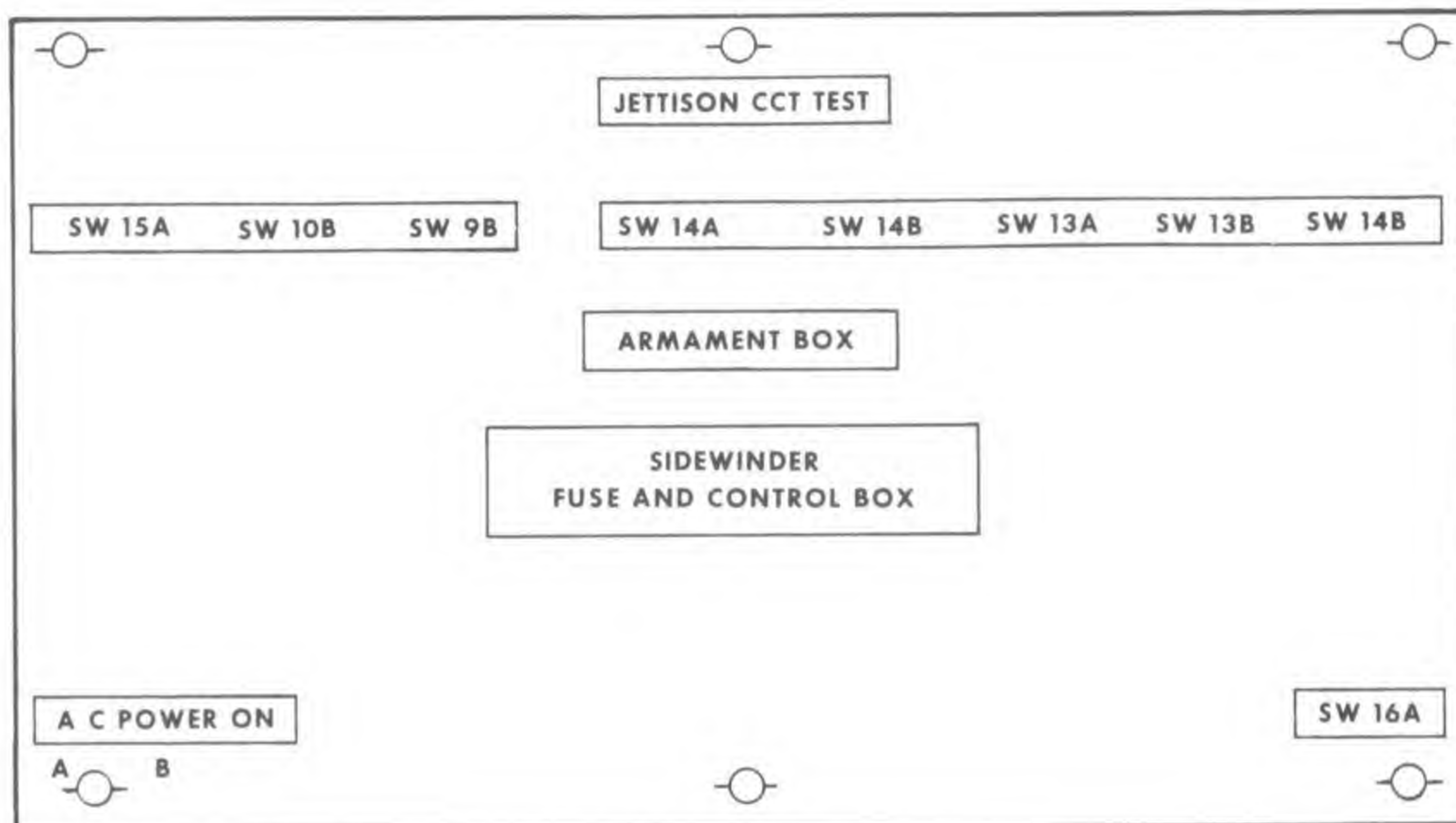


AFT STARBOARD EQUIPMENT BAY (BOTTOM)

AV8A-75-(22-2)

Figure 2-4. Armament Fuses and Relays (Sheet 2 of 3)





## FORWARD EQUIPMENT BAY

AV8A-75-(22-3)

Figure 2-4. Armament Fuses and Relays (Sheet 3 of 3)

2-13. The WCP enables the pilot to fuze, and select for release or jettison pylon mounted stores. In addition, indication of the presence of stores on the pylons is provided by indicator lights. The lights are illuminated while stores are present and selected, and extinguished when they are released. When a practice multiple bomb rack is installed on the pylon, the indicator lights remain illuminated after release due to the presence of the PMBR. There are two general modes of release; manual and automatic. In either Manual or Automatic, when the bomb release button is depressed, a single alternate right to left wing release pulse is supplied until four wing stations have released, then the release pulse is supplied to the centerline station.

### 2-14. BASIC CONTROLS AND COMPONENTS.

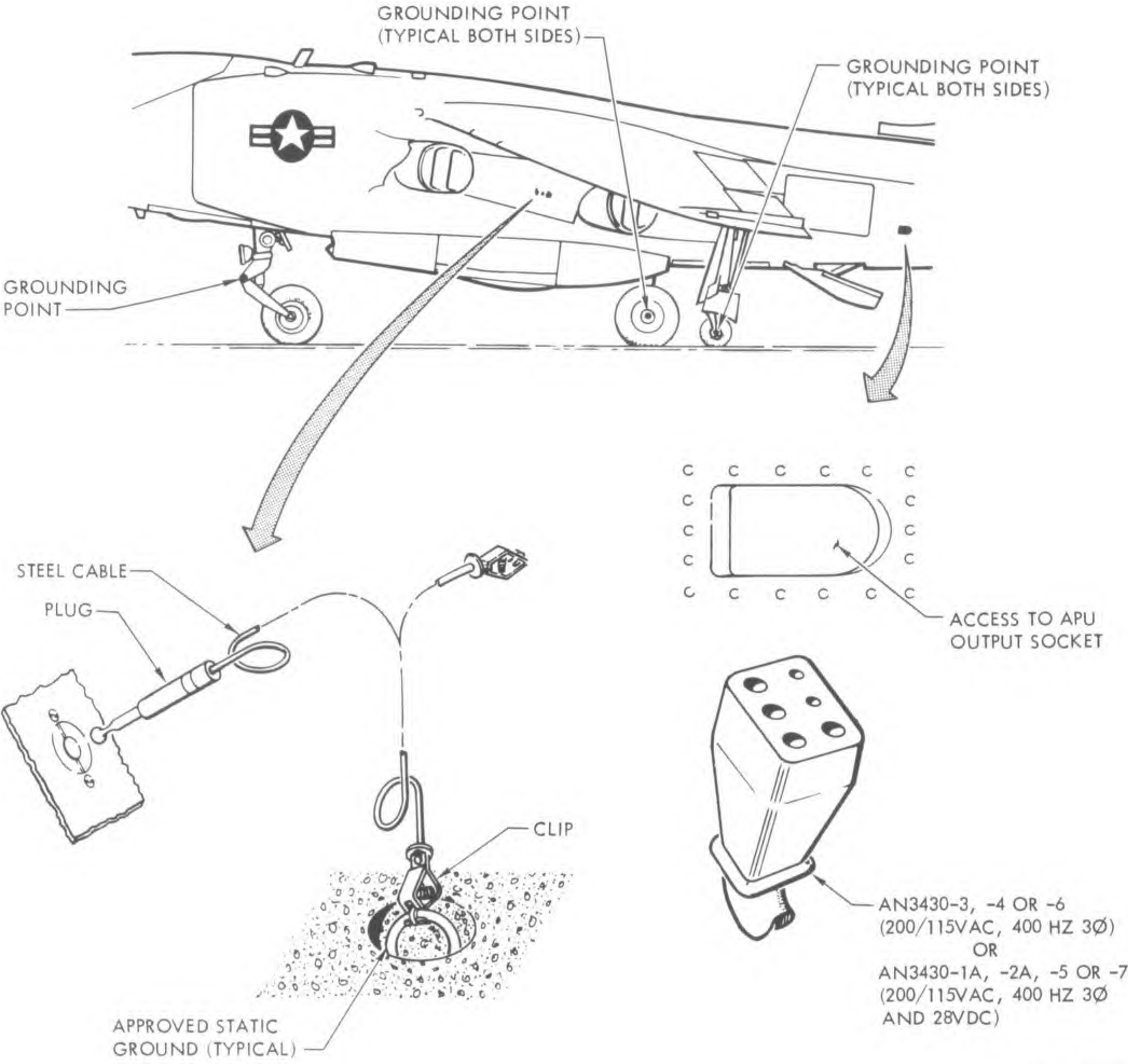
2-15. ARMAMENT SAFETY BREAK (figure 2-3). The armament safety break is located in the main wheel bay on the starboard side of the aircraft between frame 31 and 32. The break comprises three toggle switches which are springloaded to ON position, and mounted in a switch assembly. The circuit associated with each switch is only rendered safe when a key (P/N A.280358) is inserted into the assembly and turned through 90°. This operates the three switches simultaneously, disconnecting the power to the armament circuits. A remove before flight flag is attached to the key so the condition of the break may be noted; in or out. Stores cannot be released with the key in position and switches off. Engines can not be running when removing or installing the key.

2-16. WEIGHT ON WHEEL SWITCH. (figure 2-3) The weight on wheel switch located on the main landing gear is provided to ensure that the armament and Sidewinder release, firing, launch and jettison circuits are isolated from the electrical supplies until the aircraft weight is off the main landing gear. The microswitch is mounted on a bracket attached to the upper torque link and controls the operation of relays. When the weight of the airplane is on the main landing gear, the armament system is rendered safe. A locally manufactured switch actuator wedge is used for all ground procedures.

2-17. ARMAMENT MASTER SWITCHES. (figure 2-7) The two armament master switches located on the Sidewinder Control panel and marked ARM MASTERS/On 1/On 2. These switches can be locked in both the safe (Off) and the ON positions to prevent inadvertent operation. Switch "1" controls the supplies from No. 1 battery busbar to the armament circuits. Switch "2" controls supplies from No. 2 battery busbar to armament and Sidewinder circuits.

2-18. Bomb/Rockets/Sidewinder Switch (figure 2-7). The Bombs/Rockets/Sidewinder switch, located on the Sidewinder Control Panel is a two-position toggle switch with positions of Bombs/Rockets On and Sidewinder On. Bombs/Rockets On transfers the bomb button and bomb button safety flap circuits to bombing and rocket firing function. The normal position of the switch should be in the Bombs/Rockets On.

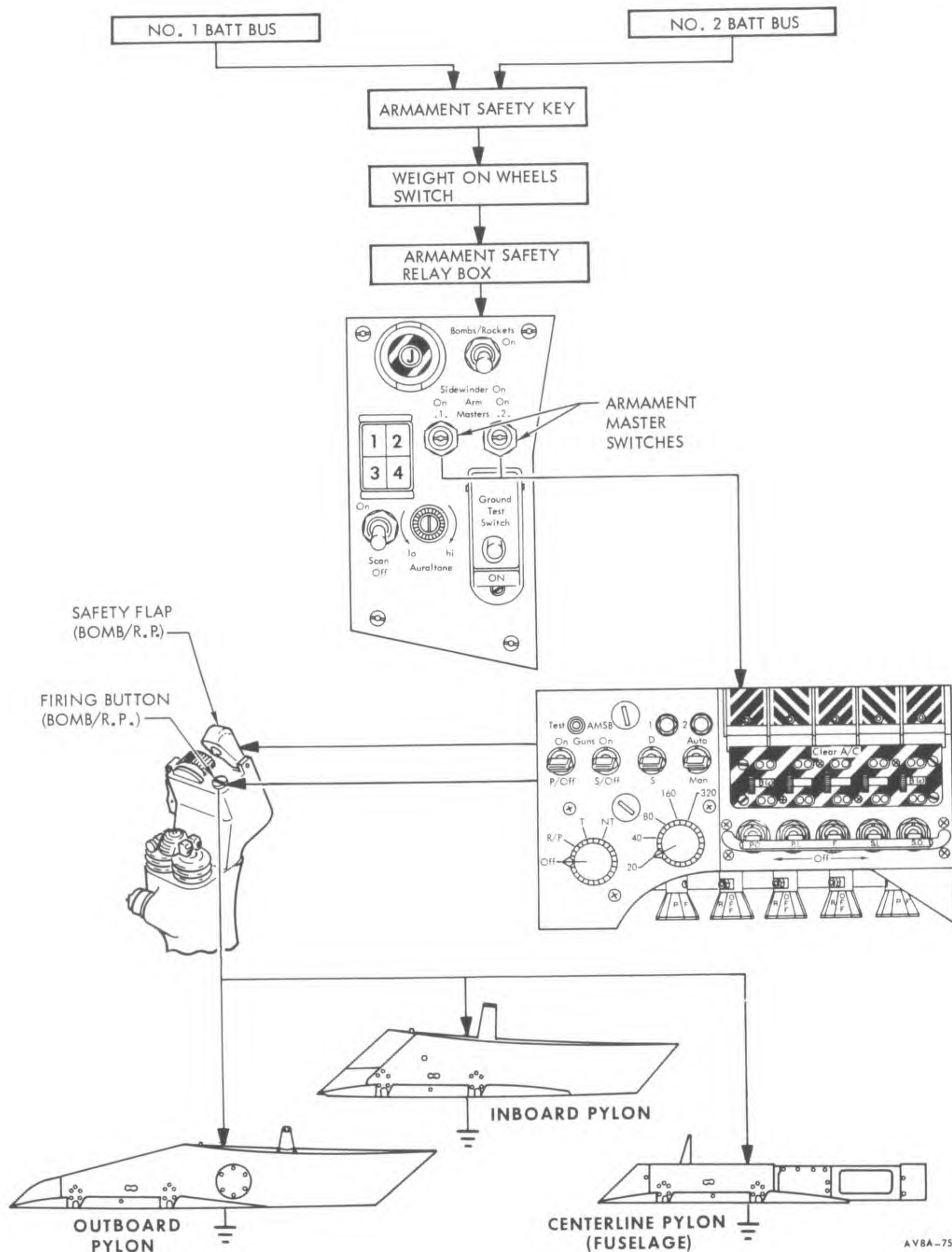




AV-8A-75-(21)

Figure 2-5. External Electrical Power and Grounding Provisions





AVBA-75-(20)

Figure 2-6. Bomb/Rocket Release System



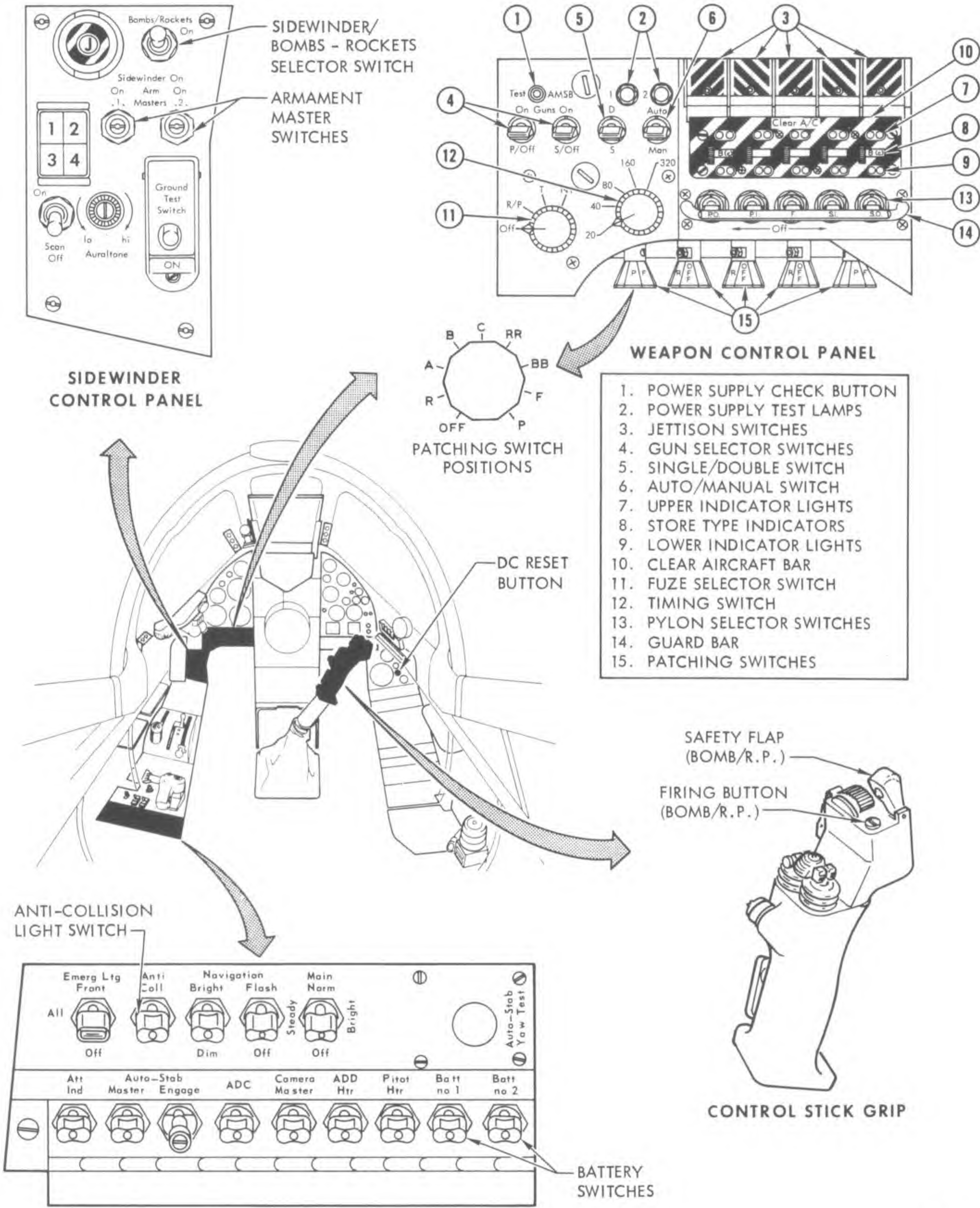
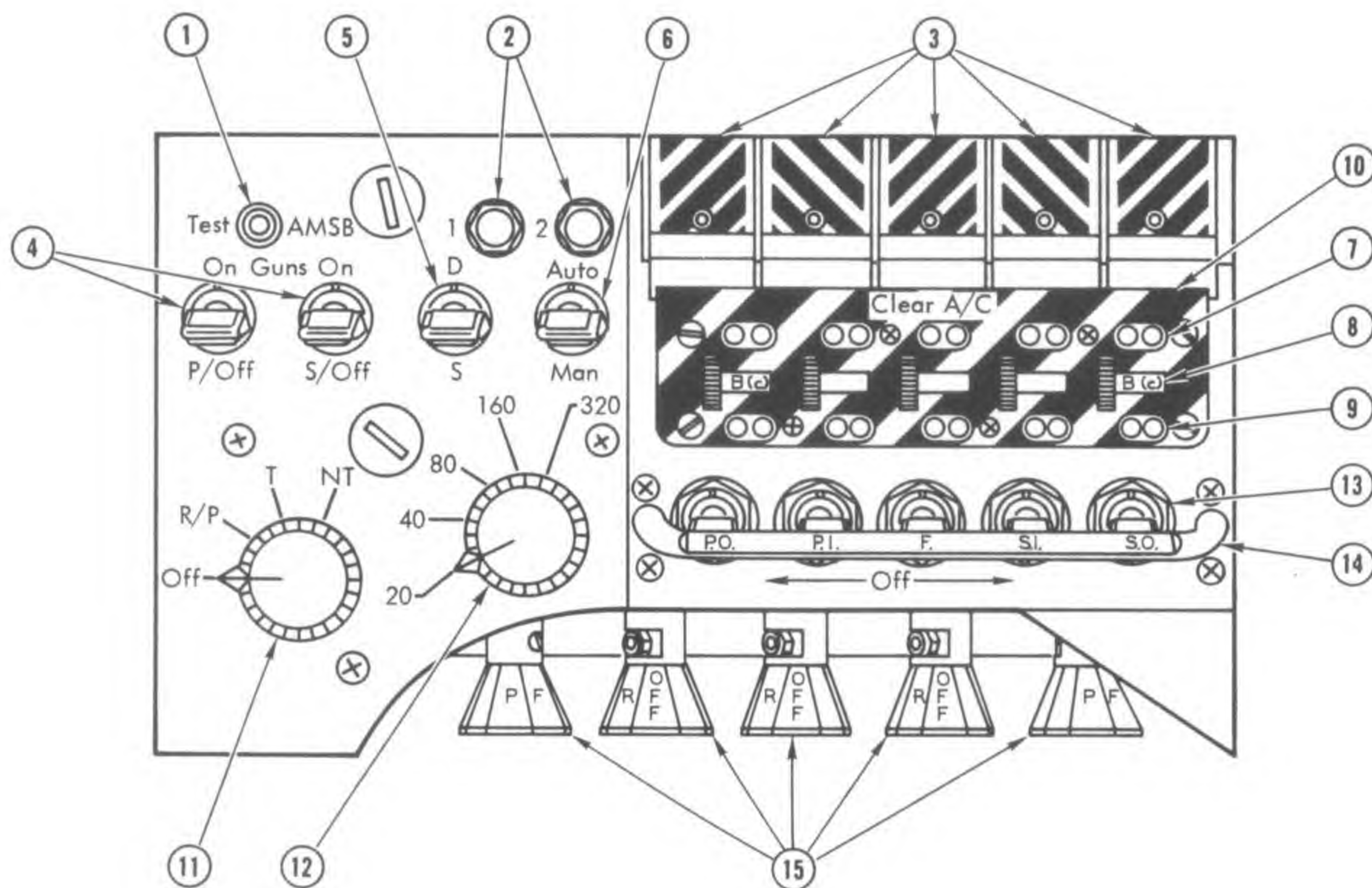


Figure 2-7. Bomb/Rocket Control Panel Location

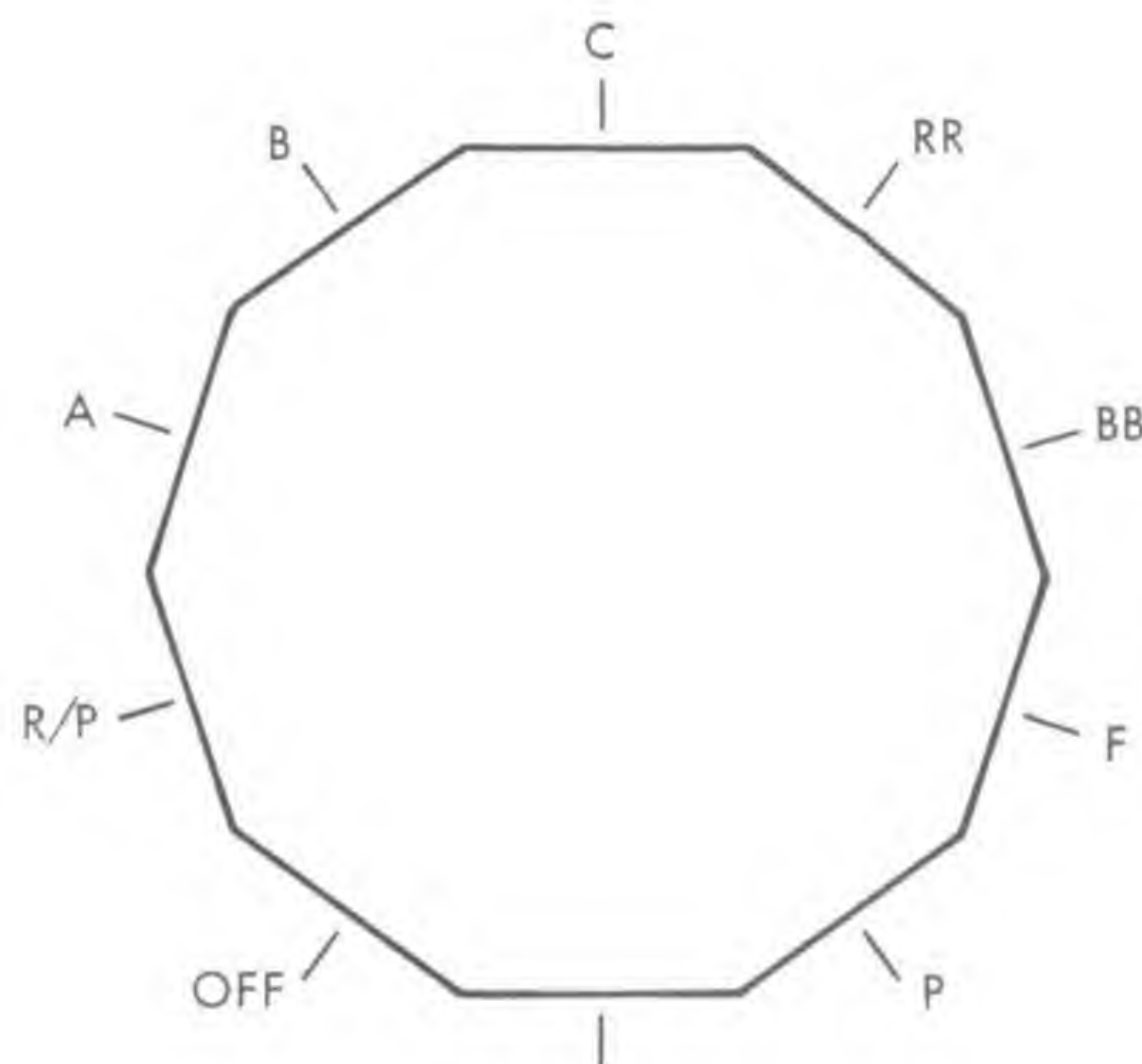




1. POWER SUPPLY CHECK BUTTON
2. POWER SUPPLY TEST LAMPS
3. JETTISON SWITCHES
4. GUN SELECTOR SWITCHES
5. SINGLE/DOUBLE SWITCH
6. AUTO/MANUAL SWITCH
7. UPPER INDICATOR LIGHTS
8. STORE TYPE INDICATORS
9. LOWER INDICATOR LIGHTS
10. CLEAR AIRCRAFT BAR
11. FUZE SELECTOR SWITCH
12. TIMING SWITCH
13. PYLON SELECTOR SWITCHES
14. GUARD BAR
15. PATCHING SWITCHES

Figure 2-8. Weapon Control Panel





1. R/P - ROCKET/PROJECTILE - USE THIS SETTING WHEN CARRYING ROCKET PODS.
2. A, B, C - USE THESE SETTINGS WHEN CARRYING BOMBS.
3. RR - USE WHEN CARRYING TWIN ROCKET PODS. (TWIN CARRIER)
4. BB - USE WHEN CARRYING TWIN BOMBS. (TWIN CARRIER)
5. F - FUEL - USE WHEN CARRYING FUEL TANKS ON INBOARD STATIONS.
6. P - PRACTICE - USE WHEN CARRYING PRACTICE BOMBS.

AV8A-75-1761

Figure 2-9. Patching Switches

2-19. WEAPON CONTROL PANEL (figure 2-8). The weapon control panel (WCP) houses the majority of switches and indicators for the in-flight control of the armament system. Incorporated in the WCP are integrated micro-circuits and relay logic circuits, which control the fuzing, firing and release of stores. The circuits are arranged in ten channels, two associated with each pylon. The switches and indicators are as follows:

1. Push to Test Switch and Test Lights. Two test lights marked 1 and 2, and a pushbutton marked TEST/AMSB are incorporated to enable 28 VDC power from No. 1 and No. 2 battery busbars to be tested. When depressed, the contacts close to complete the circuit to ground, and test lights come on, ensuring power is present and continuity of the fuzes.

2. Pylon Selector Switches. Five double pole toggle selector switches are provided, one for each pylon. No store can be released until the appropriate pylon selector switch has been actuated. The switches are protected by a guard bar to prevent accidental actuation. They may be overridden if a jettison is required by actuation of jettison switches.

3. Gun Switch. Two gun selector switches marked GUNS, ON, P/OFF and ON, S/OFF are incorporated to control power to the gun firing circuit.

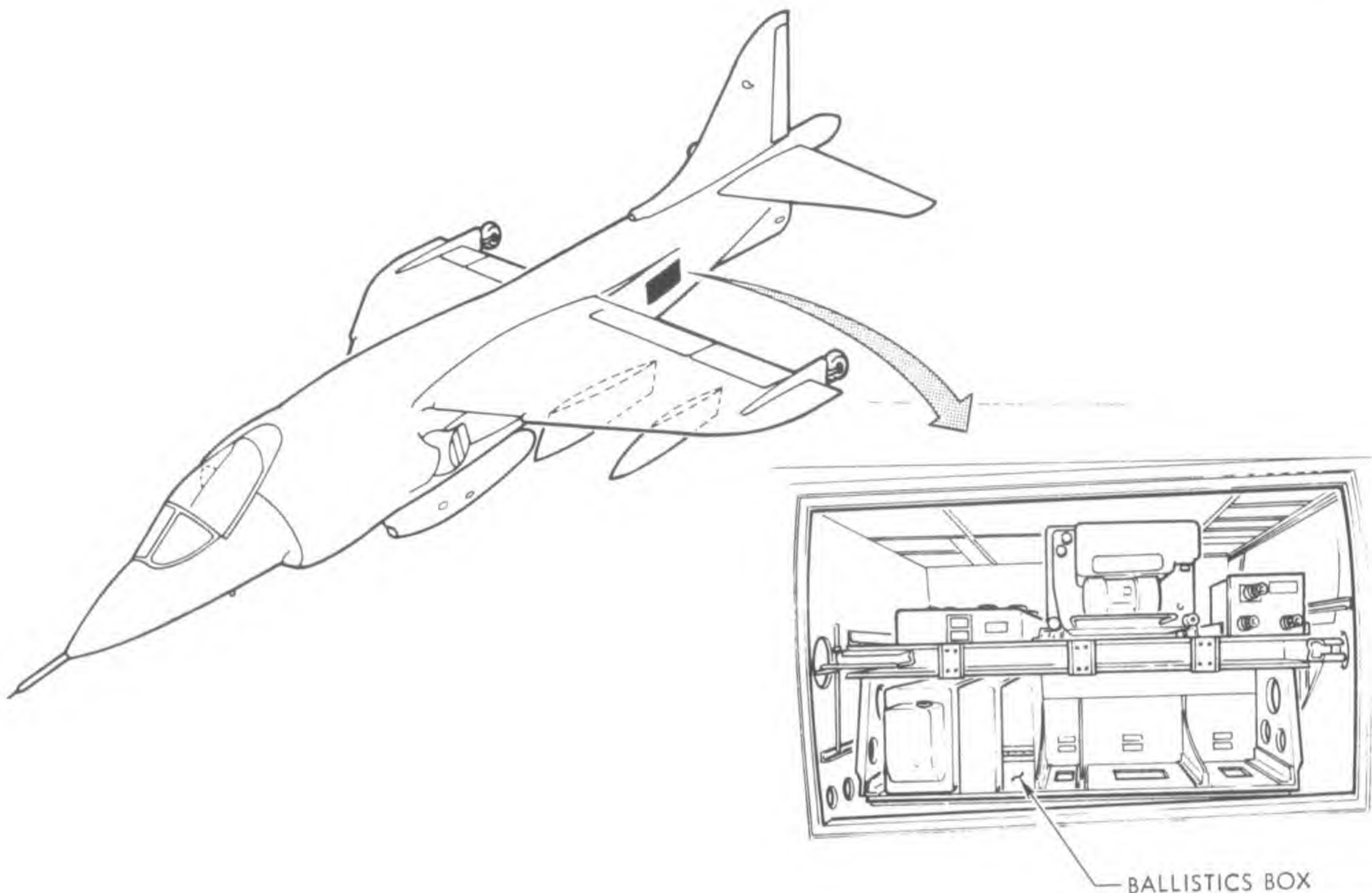
4. Jettison Switches and Clear Aircraft Bar. Five jettison switches are provided, one for each pylon.

They are hinged along the top edge and overlapped along the bottom edge by the Clear A/C bar. The Clear A/C bar is hinged along its bottom edge. Stores may be jettisoned singly by depressing the appropriate switch or all stations by depressing the Clear A/C bar. Stores are jettisoned without regard to any selection made on the WCP. The only requirement being that power is applied to the No. 1 or No. 2 battery busbar. Jettison circuit must not be energized longer than 3 seconds.

5. Rotary Store Type Indicator. Five rotary store type indicators (one per pylon) are mounted in the clear AC bar which are preset by means of a knurled wheel before flight to indicate the type of weapon or store carried on the pylon. The indications are as follows:

- a. FUEL - 120 U.S. gallon external tank
- b. B(ff) - Unretarded (free fall) bomb
- c. B(r) - Retarded bomb
- d. B(c) - Cluster bomb
- e. R/P - Rocket projectiles.
- f. F/B - Fire Bomb
- g. RECCE - Not applicable.
- h. BLANK - Empty Station





AV8A-75-(18)

Figure 2-10. Ballistic Box

6. Indicator Lights. Indicator lights are located above and below each rotary store type indicator. Each indicator light has two filaments connected in parallel to guard against possible failure. The upper indicator lights will come on when the applicable station is selected for release.

7. Fuzing Selector Switch. The fuzing selector switch is a rotary type four position switch with OFF, R/P, T and NT positions to arm stores. Except for jettison, no store may be released until armed. When the switch is selected to R/P and applicable pylon selector switch on, the indicator light will come on denoting that a rocket launcher is installed. When the switch is selected to T (tail) or NT (nose and tail) power is applied to arm any bombs installed on their pylons. The selection of T or NT depends upon the type of arming used.

8. Timing Switch. The timing switch is a rotary selector switch marked 20, 40, 80, 160, and 320 msec. The switch governs the time interval between individual release of stores.

9. Auto/Manual Switch. The auto/manual switch is a double pole toggle switch marked Auto/Man. When stores are to be released in auto the release interval is determined by the timing switch as modified by a weapon aiming computer. When the stores are to be released in Man, the release interval is determined by the timing switch only.

10. Single/Double Switch. The single/double switch is a single pole toggle switch marked D/S. The S position is the only one used at this time.

11. Patching Switches. (figure 2-9) The Patching Switches are located in the bottom section of the weapons control panel (WCP). These switches are set in accordance to the type of store carried on the aircraft. The setting of the patching switches must coincide with the ballistic plugs installed in the ballistic box. Setting the patching switches and installation of the ballistic plugs is the responsibility of the ordnance section.

12. Balance. If bombs are to be released in a ripple sequence from the pylons, the bombs are released in a preferred sequence having regard to aircraft stability. The method used to control release is a high speed scanning system in the micrologic distribution unit of the WCP. The high speed scanning system allows rapid searching of the pylons in the preferred sequence each time the bomb/rp button is pressed, provided the Sidewinder/bombs-rockets selector switch is selected to Bombs - Rockets. If the scanner detects that a bomb signalled for release is not present, or if the relevant BOS (bomb off station) switch fails to register that the bomb has gone, the scanner immediately signals the release of the next bomb in the sequence to avoid a "hole" in the stick. However, to ensure that a balanced condition is maintained, an inhibit signal is generated which prevents the consecutive release of bombs from the same side of the aircraft. For instance, if after



## Description

releasing a bomb from the starboard side, the following port side bomb is not present, or is "hung-up" the inhibit signal prevents the release of the next bomb in the sequence which would normally be from the starboard side. The scanner then proceeds to signal the release of the next bomb in the sequence from the port side.

## 2-20. BALLISTICS BOX. (figure 2-10)

2-21. A ballistic box located on the equipment rack in the equipment bay is associated with the weapon aiming computer in the Nav/Attack system. The unit contains a fixed module for guns and three positions referred to as A, B, and C for plug-in modules. Each plug-in module contains the ballistic data to suit the particular type of store carried. Table 2-3 lists the ballistics plugs and the store to which they are related. Also listed are the positions to which the plugs should be fitted and the appropriate patching switch selections. Before flight, the appropriate plug-in module should be inserted in the ballistics box and the appropriate selection made on the patching switches.

2-22. CONTROL STICK GRIP. (figure 2-7) The bomb/rp button for firing rockets and release of bombs is located on the control stick grip. The button is protected by a bomb/rp safety flap, which when opened, operates a safety switch.

2-23. ADEN 30MM GUN SYSTEM.

2-24. The gun system is designed to be installed in two external pods on each side of the centerline pylon. It is used for air-to-ground targets and air-to-air. The guns are electrically fired through the gun firing unit with a 115Vac supplied by No. 2 AC bus bar.

2-25. The pod assembly is a streamlined container which houses the Aden 30MM gun. The pod assembly is composed of the cradle, blast suppressor, front fairing, center fairing, ammunition box and rear fairing. The gun pods are secured to the fuselage and cannot be jettisoned.

2-26. Controls for operation of the guns pod are located on the WCP in the cockpit and through the gun firing unit in the center fuselage access bay (figures 2-11 and 2-12).

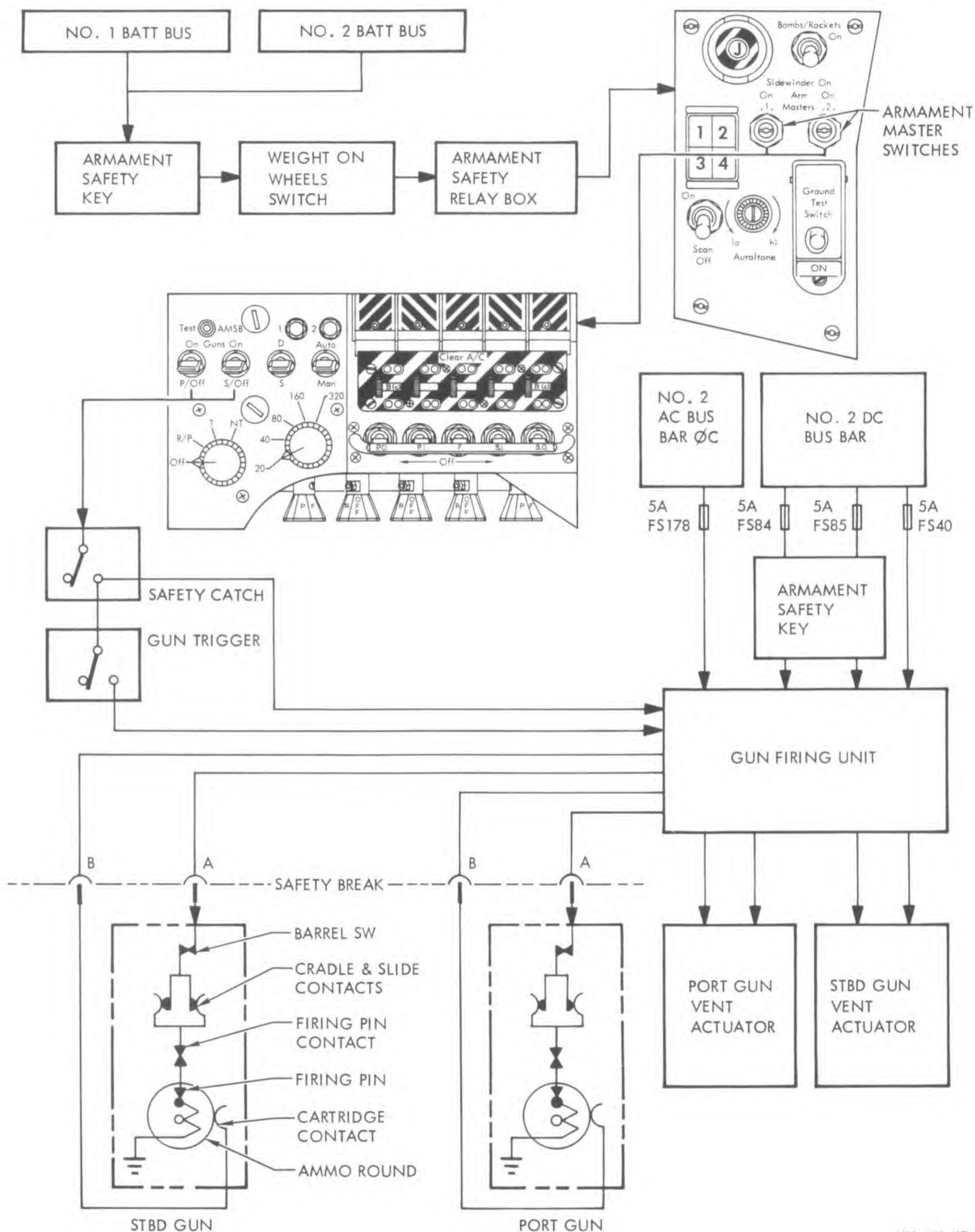
Table 2-3. Ballistics Plugs and Ballistics Box Positions and Patching Selections

Type of Store	Ballistics Plug	Ballistics Box Position	Patching Switch Selection
MK 106 Practice Bomb	3854/03733	B only	P
MK 76 Practice Bomb	3854/03732	B only	P
MK 81 LDGP Bomb	3854/03729	A, B, or C	A, B, or C
MK 82 LDGP Bomb	3854/03730	A, B, or C	A, B, or C
MK 83 LDGP Bomb	3854/03731	A, B, or C	A, B, or C
2.75" Rockets	3854/03731	A only	R
Zuni Rockets	3854/03736	A only	R
MK 81 Ret Bomb	3854/03734	A, B, or C	A, B, or C
MK 82 Ret Bomb	3854/03735	A, B, or C	A, B, or C
Cluster Weapons	3854/03729	A, B, or C	A, B, or C
Fire Bombs	3854/03729	A, B, or C	A, B, or C
SUU-40/44	N/A	N/A	R
Sidewinder (AIM-9B/D/G/H)	N/A	N/A	OFF

NOTE: If position C in the ballistic box is to be used ensure that the ballistics plug is inserted upside down.

The patching switch selection must agree with the ballistics box position used, or the pilot will not receive correct arming inputs in the HUD.





AVR 1-75-(17)

Figure 2-11. Gun Firing Circuit



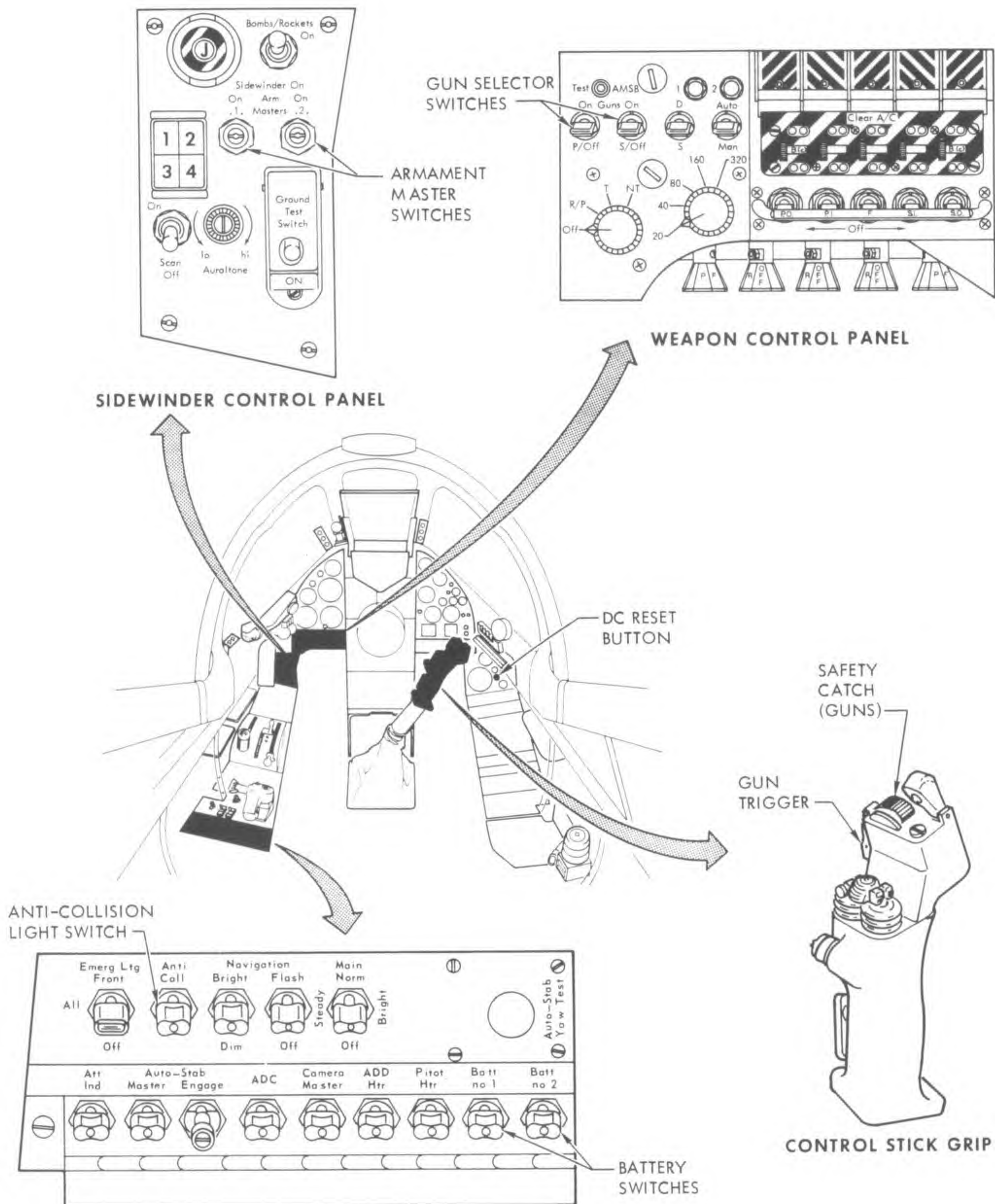


Figure 2-12. Aden 30MM Gun Control Panel Location



## 2-27. BASIC CONTROLS AND COMPONENTS.

2-28. ARMAMENT SAFETY BREAK AND WEIGHT-ON-WHEEL SAFETY SWITCH. (figure 2-3) Refer to paragraphs 2-15 and 2-16.

2-29. ARMAMENT MASTER SWITCHES. (figure 2-12) Refer to paragraph 2-17.

2-30. WEAPON CONTROL PANEL. (figure 2-12) Refer to paragraph 2-16.

1. Gun Selector Switches. The gun selector switches are two toggle switches incorporated into the WCP and marked for port or starboard gun. When positioned to ON duplicated power voltage from the battery bus bars to the WCP is fed to the gun firing unit and to the gun safety catch.

## 2-31. AIRCRAFT GUN FIRING UNIT.

2-32. The aircraft gun firing unit (londex box) is located in the center of the rear general access bay in the upper part of the center fuselage. The unit housing contains the six relays which control the firing and purging circuits. A 10 ohm resistor in each firing line, limits the firing current. The relays are as follows:

1. Gun Ventilator Selector Relay.
2. Port Gun Selector Relay.
3. Starboard Selector Relay.
4. Port Gun Firing Relay.
5. Starboard Gun Firing Relay.
6. Gun Ventilator Control Relay.

2-33. CONTROL STICK GRIP. The guns are fired by a trigger located on the control stick grip. When not in use, the trigger is stowed within the grip and held in place by a safety catch to prevent inadvertent firing of guns (figure 2-12). Moving the safety catch to unlock, releases the trigger and opens the purge door. With the safety catch in safe position the gun is electrically safe and the trigger cannot be manually actuated.

## 2-34. MISSILE CONTROL SYSTEM (AIM-9).

2-35. The Sidewinder missiles are suspended from LAU-7 launchers which are attached to the ADU-299A/A adapter on the outboard pylon. Primary controls for AIM-9 missile operation are on the Sidewinder control panel. These controls and indicators provide an indication of the AIM-9 missile status and control of the power, cooling, scan, test, audio, and jettison facilities. The controls and indicators on the panel include the Sidewinder select switch, armament master switches, ground test switch, Sidewinder and auraltone volume control, Scan selector switch, Sidewinder ready indicators, and the Sidewinder jettison button.

2-36. Controls and indicators for AIM-9 missiles are located on the Sidewinder control panel, the left glare shield and the control stick grip (figures 2-13 and 2-14).

## 2-37. BASIC CONTROLS AND COMPONENTS.

2-38. SIDEWINDER CONTROL PANEL. (figure 2-15) The panel located on the port console, below the WCP, contains the following switches:

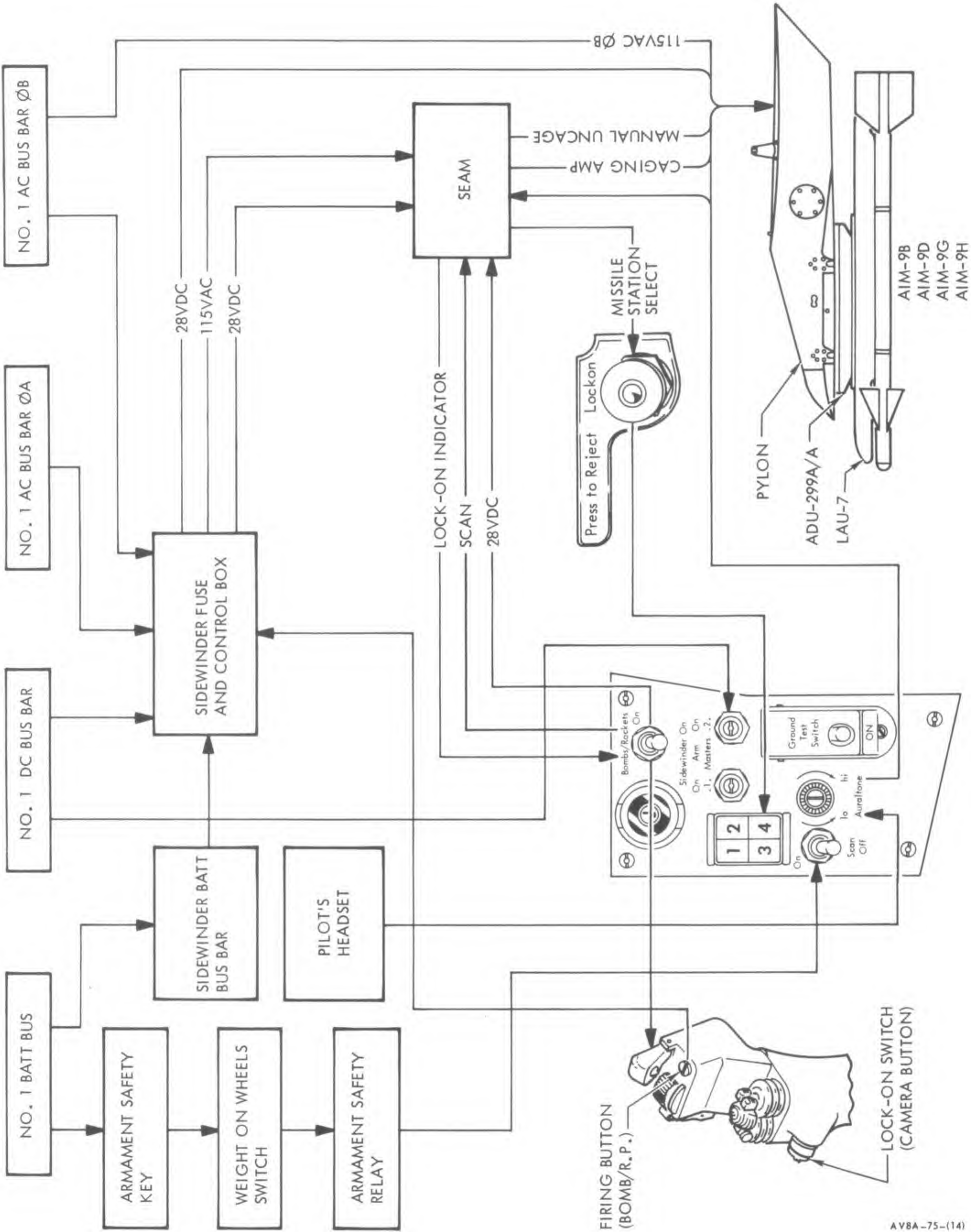
1. Bombs/Rockets/Sidewinder Switch. The bombs/rockets/Sidewinder switch is a two-position toggle switch with positions of BOMB/ROCKETS ON and SIDEWINDER ON. SIDEWINDER ON selects the AIM-9 missiles for firing. BOMBS/ROCKET ON transfers the bomb button and bomb button safety flap circuits to bombing and rocket firing functions. SIDEWINDER ON transfers the bomb button and safety flap circuits to the AIM-9 missiles and a light within the Sidewinder jettison button illuminates to indicate that AIM-9 missile system is selected.

2. Armament Master Switches. The armament master switches are the two switches labeled 1 and 2. Only armament master switch number 2 need be ON to control electrical power supply to the Sidewinder control panel via the armament safety break and the weight on wheel switch. The switch has an ON position and a safe (off) position. The switch is mechanically locked in position when placed down to the off position. All armament circuits are de-energized with the switches off. ON is selected by pulling out on the toggle lever and moving it upward. The weight on wheels switch must be bypassed before power is supplied to the armament switches for ground testing.

3. Ground Test Switch. The ground test switch is the guarded toggle switch in the lower right corner of the panel. The ground test switch enables pre-flight checks of the AIM-9 missiles without energizing any firing or jettison circuits. When the switch guard is raised, the two positions of the switch labeled NORM and TEST are visible. The switch is spring loaded to the NORM position and must be held in the TEST position. Holding the switch to TEST energizes the AIM-9 reject switch and opens a nitrogen control valve in the missile launchers. Nitrogen cooling of the missile IR detectors is required for the preflight check. The energized reject switch permits selection of any particular AIM-9 missile for testing as indicated by the associated Sidewinder ready indicator. Missile testing is accomplished by placing an IR source in front of the selected missile IR detector and checking that a target audio tone is presented in the headset. Placing the switch to NORM routes electrical power to the missiles and controls via the armament safety break, the weight on wheels switch, and the armament master switches. The switch guard can be lowered when the ground test switch is in NORM which is the normal position.

4. Auraltone. The control is used to adjust tone volume during system ground check of AIM-9 missiles. Clockwise rotation increases the tone volume.





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Figure 2-13. AIM-9 Missile Firing System



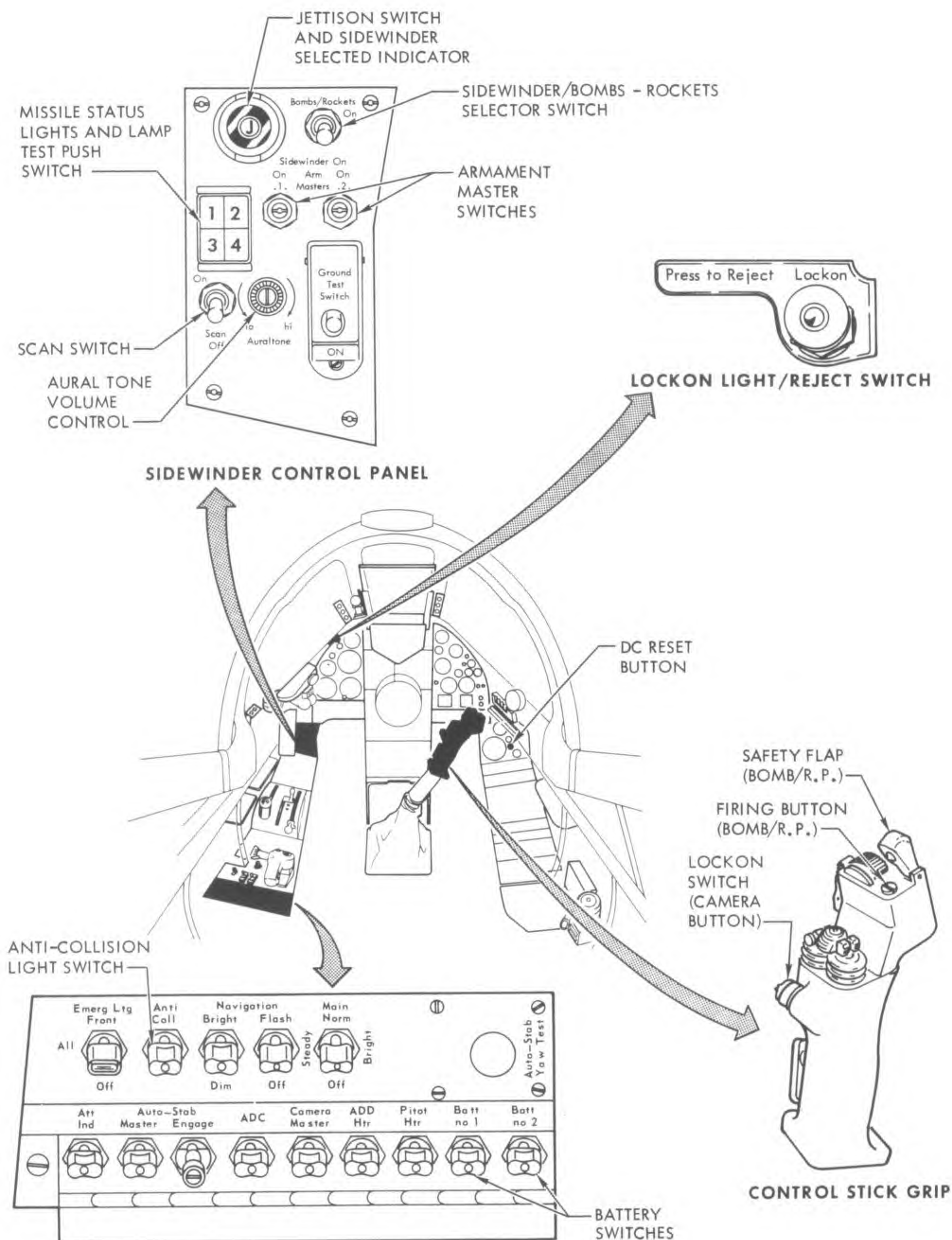
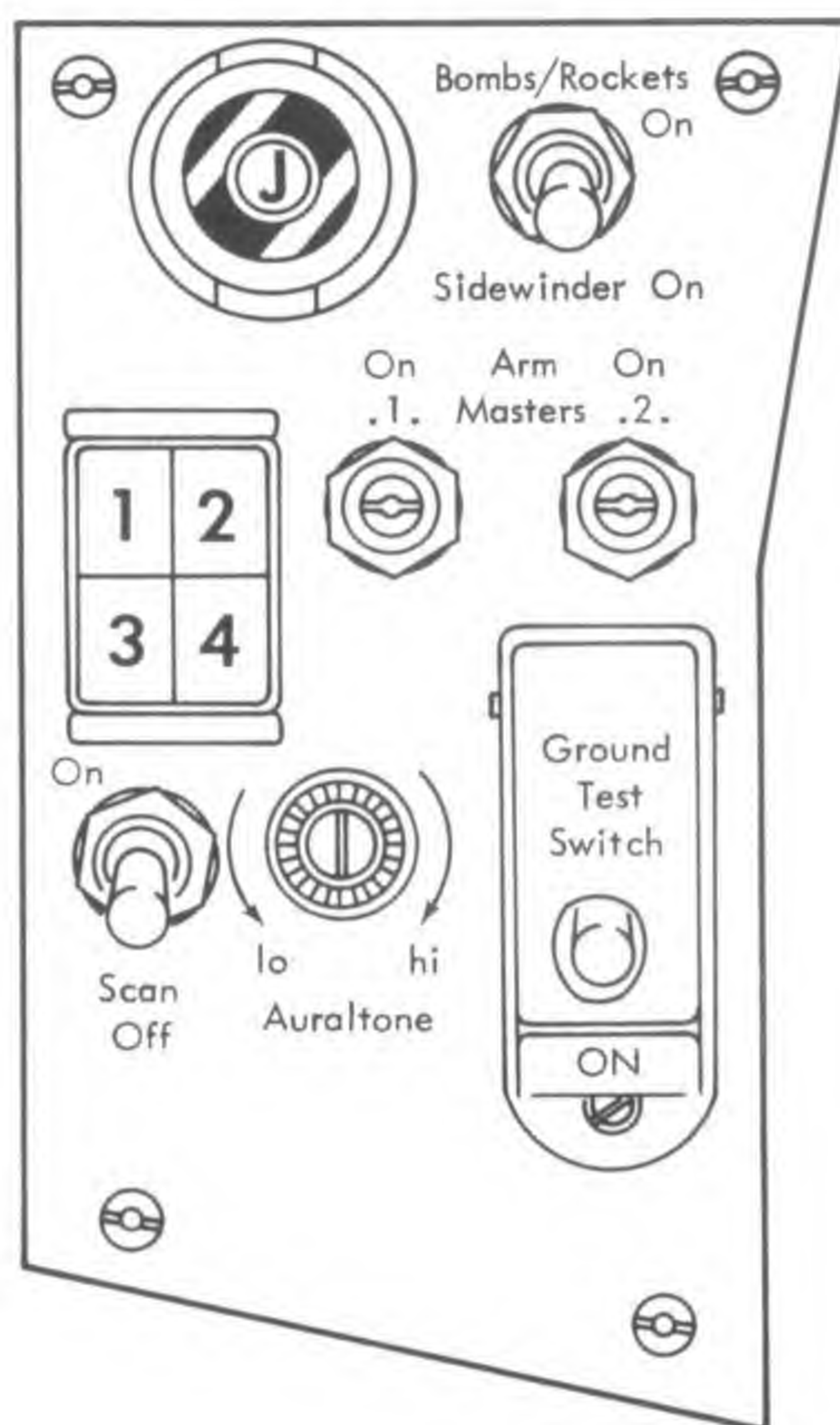


Figure 2-14. Missile Control Panel Location





AV8A-75-(175)

Figure 2-15. Sidewinder Control Panel

5. Scan Switch. The Scan switch is a two-position toggle switch with OFF and ON positions. When an AIM-9G/H missile is selected, placing the Scan switch to ON selects the SEAM (Sidewinder expanded acquisition mode) which allows the missile head to scan through a cone of 4.6 deg., instead of 2.5 deg., while the missile is on the launcher. When the switch is placed to OFF, the AIM-9G/H seeker is caged to the missile axis.

6. Sidewinder Ready Indicators. Four Sidewinder ready indicators, labeled 1 through 4, are provided to indicate the AIM-9 missile status. Each indicator has an internal light that illuminates when the associated missile is ready for launch. The numbered indicators are associated with the four missile stations on the left and right outboard wing pylons as follows: 1-left inboard, 2-right inboard, 3-left outboard, and 4-right outboard. When armament master switch number 2 is placed to ON and SIDEWINDER ON is selected with the SIDEWINDER select switch, the ready indicator for the first missile station in the firing sequence illuminates when a missile is aboard the station and ready for launch. The normal firing sequence is missile station 1, 2, 3, and then 4; i.e. in progressive order. However, the reject switch may be actuated to select any particular missile station. Each time the switch is actuated, the firing circuits sequence to the next missile station. After firing the selected missile, the respective ready indicator light extinguishes and the firing circuits automatically sequence to the next loaded station. The appropriate ready indicator for the next loaded station in the firing sequence illuminates when a missile is aboard

the station and ready for launch. The internal lights of the ready indicators may be checked by pressing the individual indicators.

7. Sidewinder Jettison Button. The jettison button enables the pilot to jettison the AIM-9 missiles. The button contains an internal light which illuminates a letter J on the button indicating the missiles can be jettisoned. The light illuminates when AIM-9 missiles are selected with the Sidewinder select switch provided armament master switch number 2 is ON and the weight is off the wheels. AIM-9 missiles are jettisoned by pressing the illuminated button.

2-39. LOCKON LIGHT/REJECT SWITCH. A combined lockon light/reject switch is provided on the left glare shield. When the pilot locks an AIM-9G/H missile seeker on a target, the lockon light flashes concurrently with the AIM-9 chirruping audio tone which indicates the seeker is tracking the target. If the missile does not lock onto the target or fails to launch, the reject switch may be pressed to reject the failed missile and select the next missile station in the firing sequence. Utilization of the reject switch in this manner allows the selection of any loaded station. For example, if it is desired to fire the number 4 missile first and the number 3 missile is selected, actuate the reject switch once to select the number 4 missile. The applicable ready indicator designates which missile is selected for firing provided a missile is aboard the station and ready for launch. Empty missile stations have to be stepped over by utilizing the reject switch.



2-40. CONTROL STICK GRIP (figure 2-14). The control stick contains a camera button, a bomb button, and a bomb button safety flap which are utilized for AIM-9 missile control and firing.

1. Camera Button. In addition to its camera functions, the camera button is also utilized to lock an AIM-9G missile seeker on a target. The AIM-9G/H seeker may be locked on a target when SEAM is selected and the seeker is detecting a target (audio tone in headset). Press the camera button when target detection is achieved. When a seeker lockon is achieved and the lockon light illuminates, the button may be released. A lockon may be rejected by re-actuating the camera button.

2. Bomb/rp Button Safety Flap. The bomb/rp button safety flap acts as a master arm control when AIM-9 missiles are selected for firing. Lifting the safety flap releases the detent solenoid in all LAU-7/A launchers and enables the missiles to be launched with the bomb/rp button.

3. Bomb/rp button. When the bomb/rp button safety flap is raised, the selected AIM-9 missile may be launched by pressing the bomb/rp button.

2-41. INTERCOMMUNICATION SYSTEM PANEL. The panel located above the starboard console contains the following switches:

1. Vol knob controls input level of the intercom signals to the headsets.

2 Rotary switch used to select GND/IC. Two position toggle switch, the Norm position is used.

2-42. SIDEWINDER EXPANDED ACQUISITION MODE BOX (SEAM). The seam box is installed in the main landing gear wheel well. The box allows a wider

angle of scan of the missile head and gives a HUD reference cross to be displayed.

2-43. ARMAMENT SAFETY BREAK AND WEIGHT-ON-WHEELS SAFETY SWITCH (figure 2-3). Refer to paragraphs 2-15 and 2-16.

2-44. JETTISON SYSTEM.

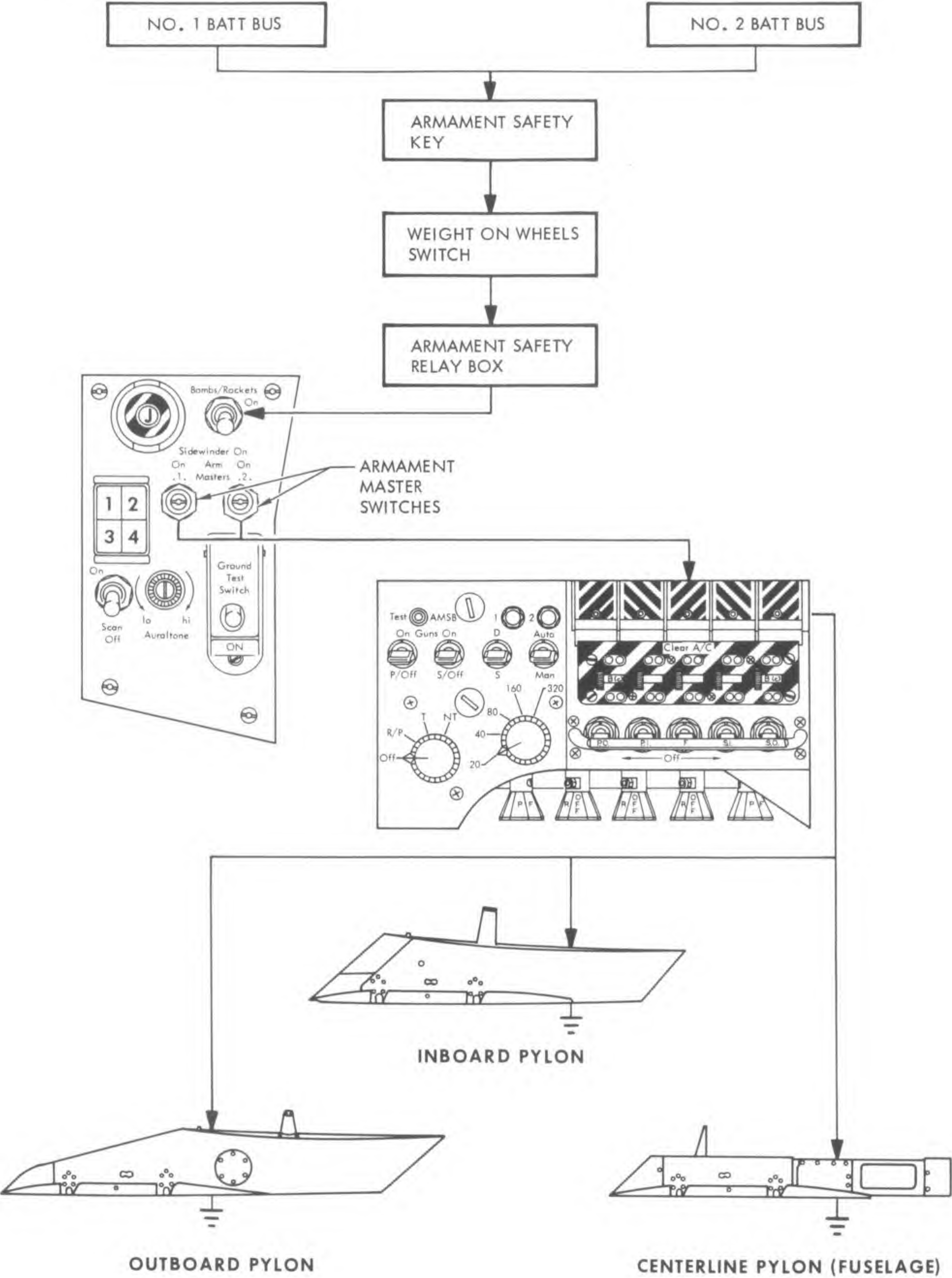
2-45. The jettison system provides a method for jettisoning all weapons, stores, and fuel tanks simultaneously by depressing the clear A/C bar on the WCP. Missiles may be jettisoned by depressing the button marked J on the Sidewinder control panel. The aircraft has three modes of emergency release; pylon jettison switches, the clear A/C bar and the missile jettison button on the SCP (figures 2-16 and 2-17).

2-46. BASIC CONTROLS AND COMPONENTS.

2-47. JETTISON SWITCHES AND CLEAR AIRCRAFT BAR. (figure 2-18.) Five jettison switches are provided, one for each pylon. The switches are hinged along their top edge and overlapped along the bottom edge by a clear aircraft bar (Clear A/C). The clear aircraft bar is hinged along the bottom edge. Stores may be jettisoned individually by depressing the appropriate switch or simultaneously by depressing the clear aircraft bar. Stores may be jettisoned, regardless of any selection on the WCP, as long as power is applied to the No. 1 or No. 2 battery busbar.

2-48. MISSILE JETTISON BUTTON. (figure 2-18) Jettison of missiles is obtained by depressing the button marked J on the SCP. This may be accomplished when the Bomb/Rocket Sidewinder Selector switch is positioned to Sidewinder, No. 2 master armament switch is ON, armament safety break key is removed, and weight on wheel bypassed.

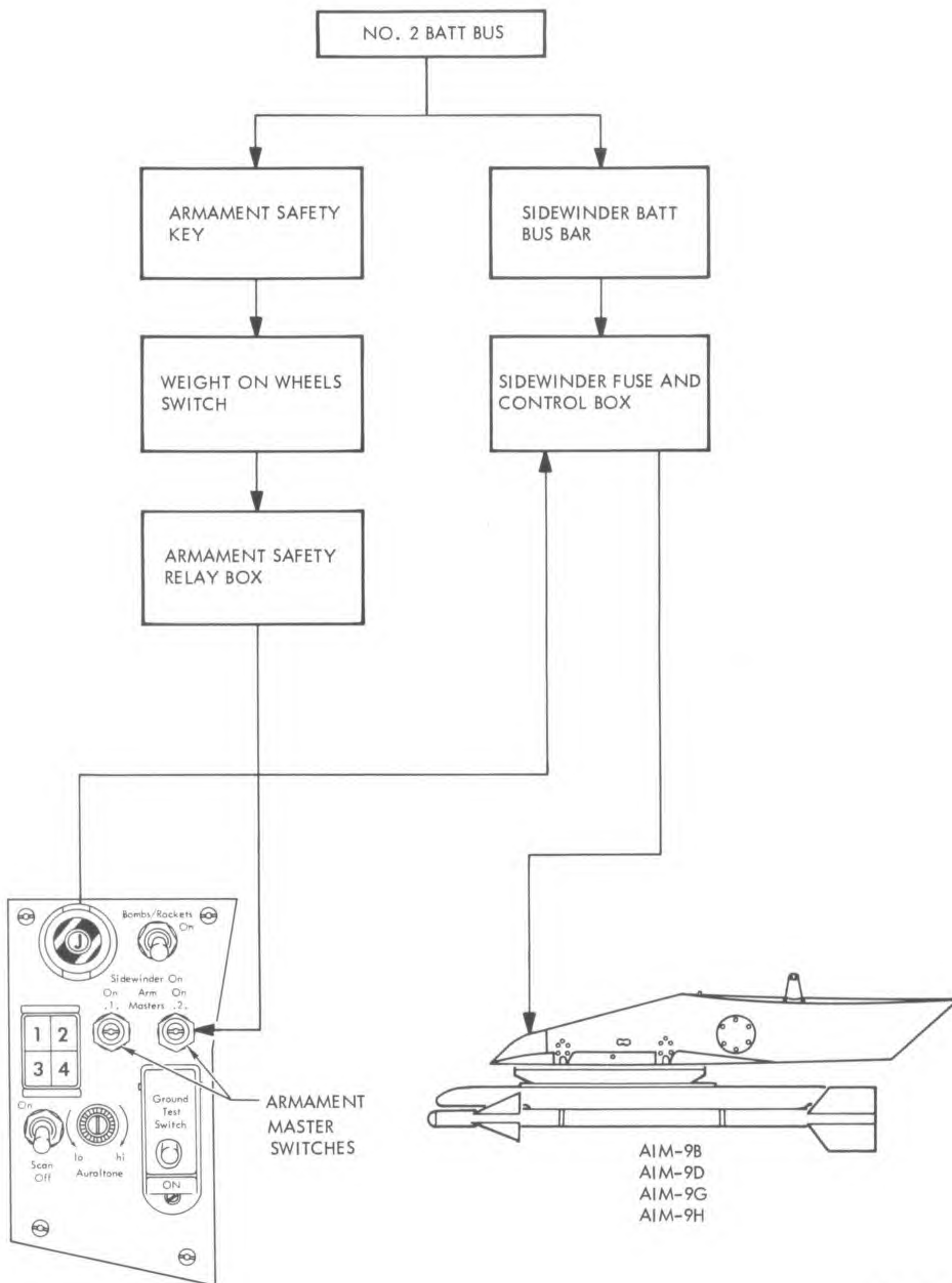




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Figure 2-16. Bomb/Rocket Jettison

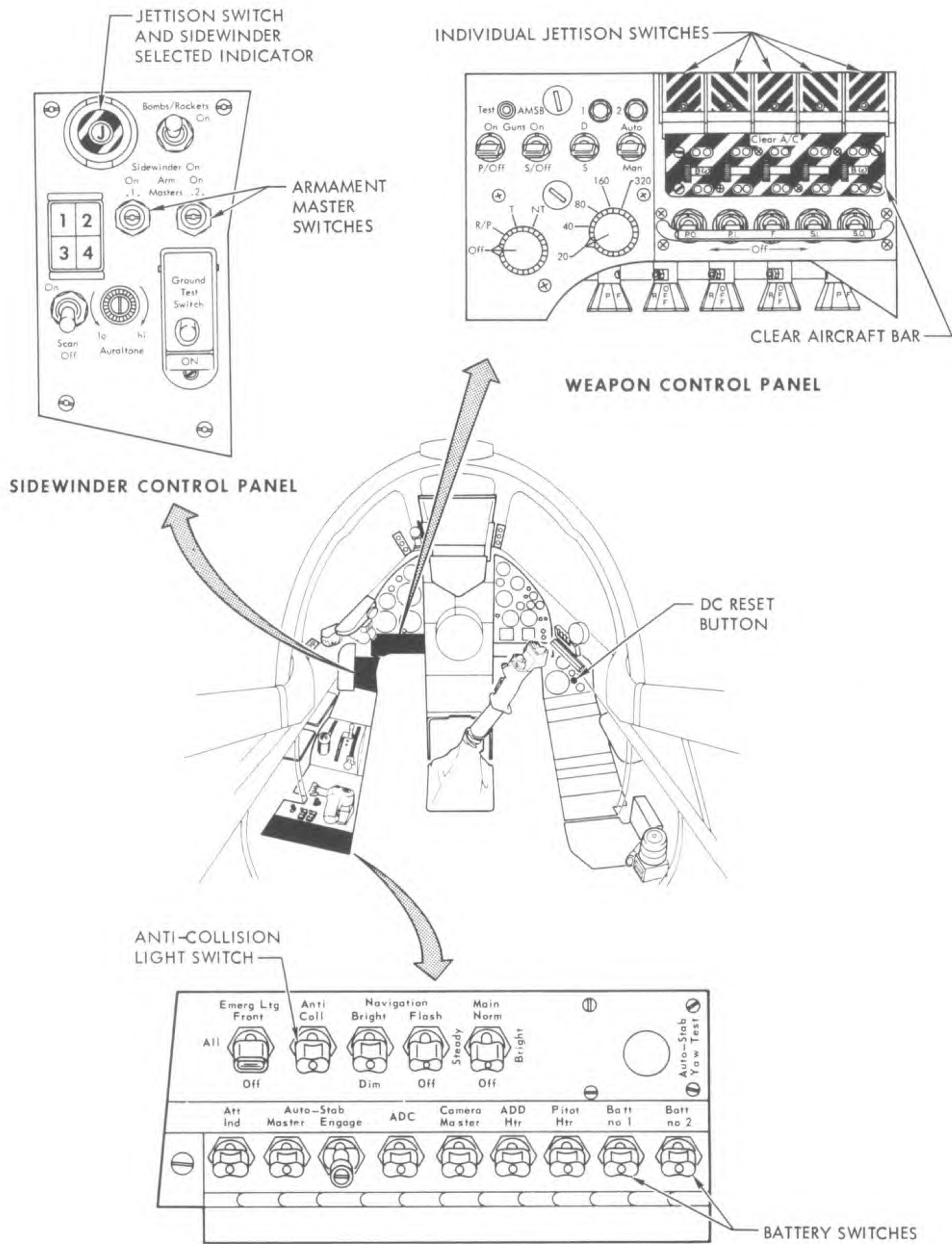




AV8A-75-(12)

Figure 2-17. AIM-9 Jettison



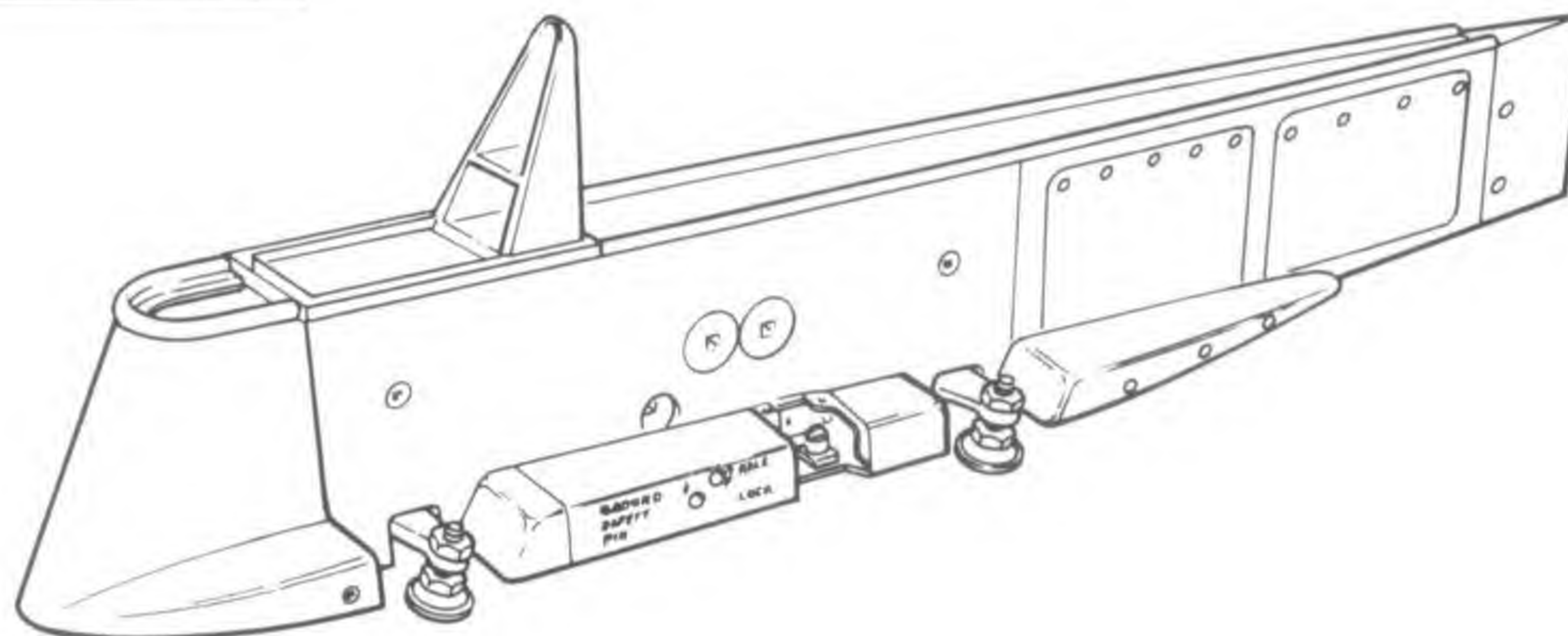


AV8A-75-(11)

Figure 2-18. Jettison Control Panel Location



Weight . . . . .	52 lb
Width . . . . .	8.30 in.
Length . . . . .	67.07 in.
Depth . . . . .	13.60 in.



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Figure 2-19. Fuselage Pylon (Centerline)

## 2-49. ACCESSORIES.

2-50. The weapon system accessories are components which complete the weapon system for a particular application. These accessories consist of the following.

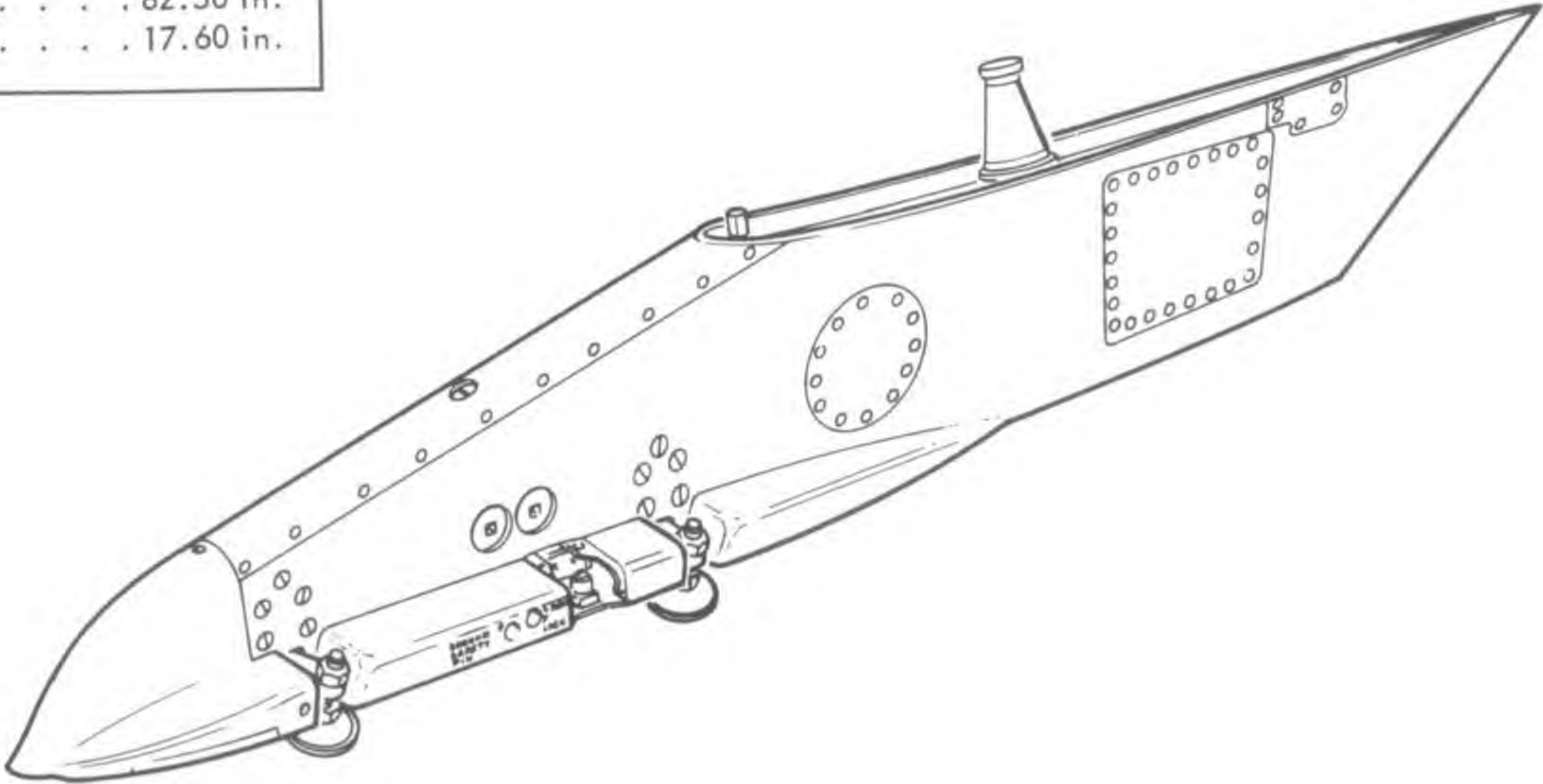
2-51. INBOARD, OUTBOARD and FUSELAGE PYLON (figures 2-19, 2-20 and 2-21). The pylon is equipped with ERU-119 ejector rack unit. The rack incorporates 14 inch suspension, an ejector mechanism, a manual release and a harness to electrically connect the rack to the aircraft system. The ejector racks are designed to carry and forcibly eject stores weighing up to 1000 pounds. Four adjustable sway braces are mounted on the side of the ejector rack.

The pylons provide the aircraft with suspension, release and firing capabilities for weapon/store launchers. The pylons also suspend the PMBR, ADU-299A/A/LAU-7 Series Launchers.

2-52. PMBR. The practice multiple bomb rack (figure 2-22) is used to carry from one to six practice bombs on aircraft stations 1, 2, 4 and 5. The bomb rack consists of a body assembly, six release assemblies, and an internal electrical system. The bomb rack can be installed on 14 inch suspension. The station select or switch, located on the aft end of the PMBR, provides automatic sequential release of stores. The PMBR can only release one store at a time. The Fire-Safe and Mode Selector Switches are disconnected.



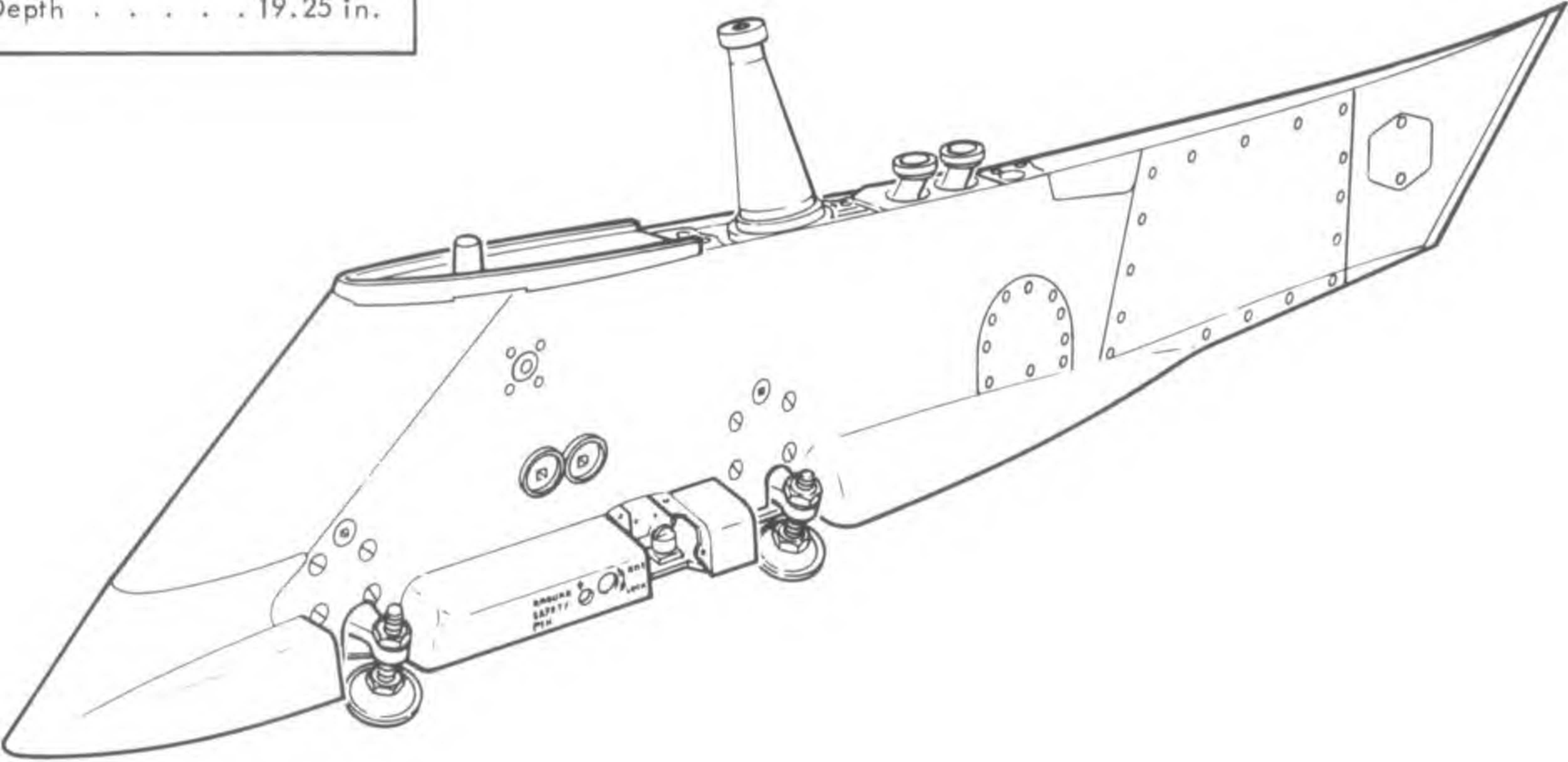
Weight . . . . .	72.50 lb
Width . . . . .	8.30 in.
Length . . . . .	82.50 in.
Depth . . . . .	17.60 in.



AV8A-75-(9)

Figure 2-20. Outboard Pylon

Weight . . . . .	77 lb
Width . . . . .	8.30 in.
Length . . . . .	72.21 in.
Depth . . . . .	19.25 in.



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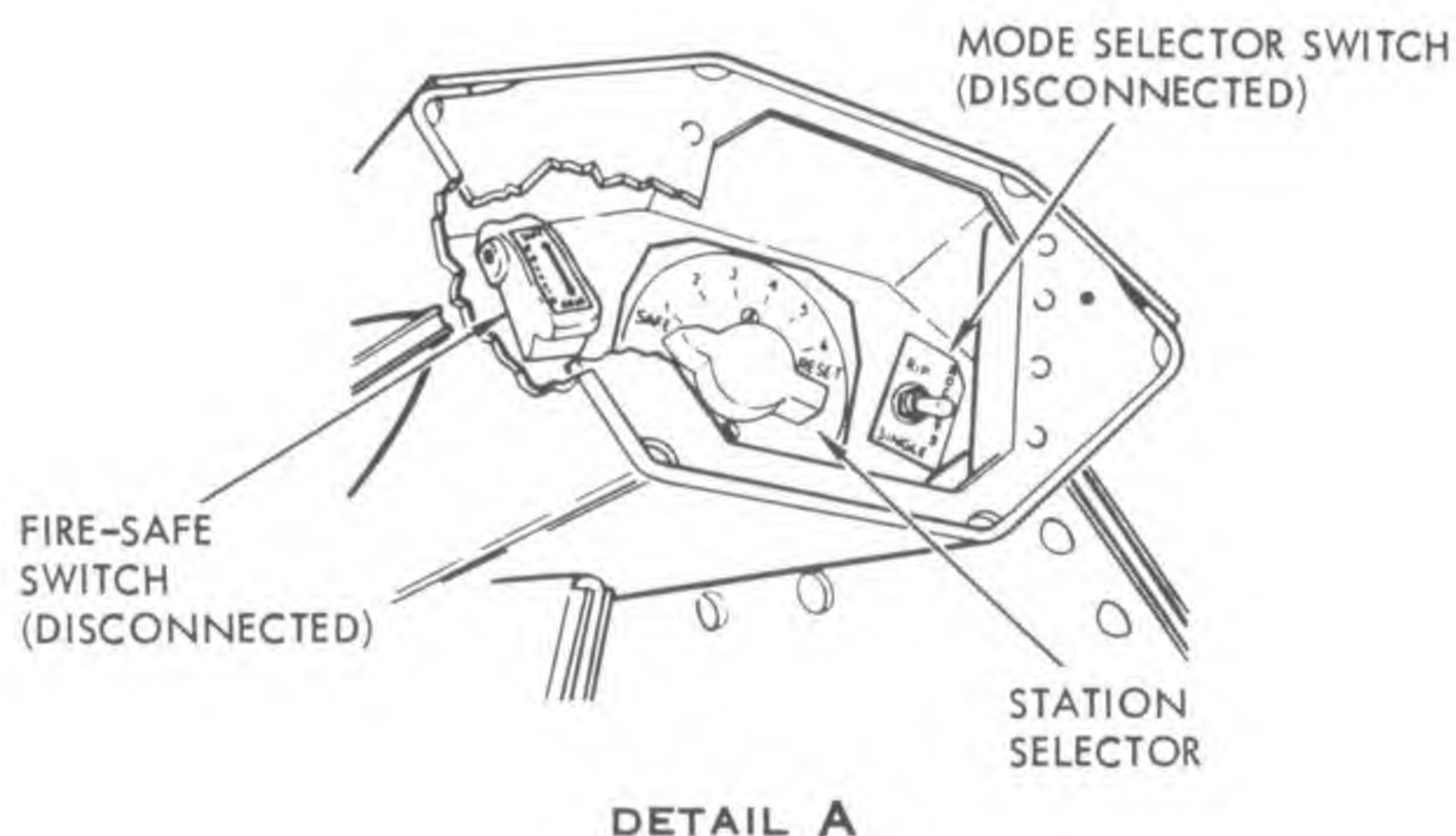
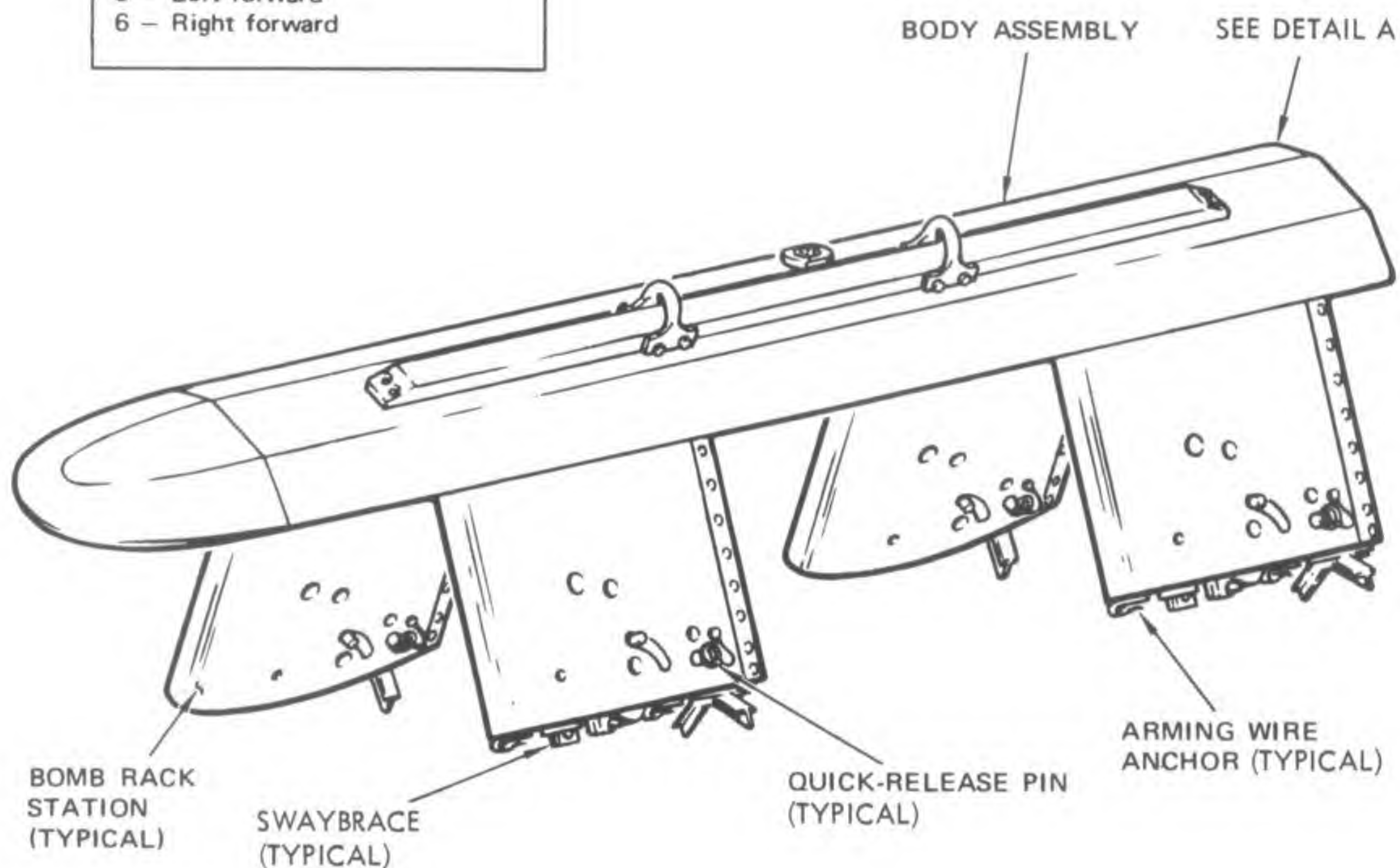
Figure 2-21. Inboard Pylon



Length .....	65 in.
Width .....	21 in.
Height .....	14 in.
Weight .....	87 lb
Suspension .....	14 in.

Release Sequence:

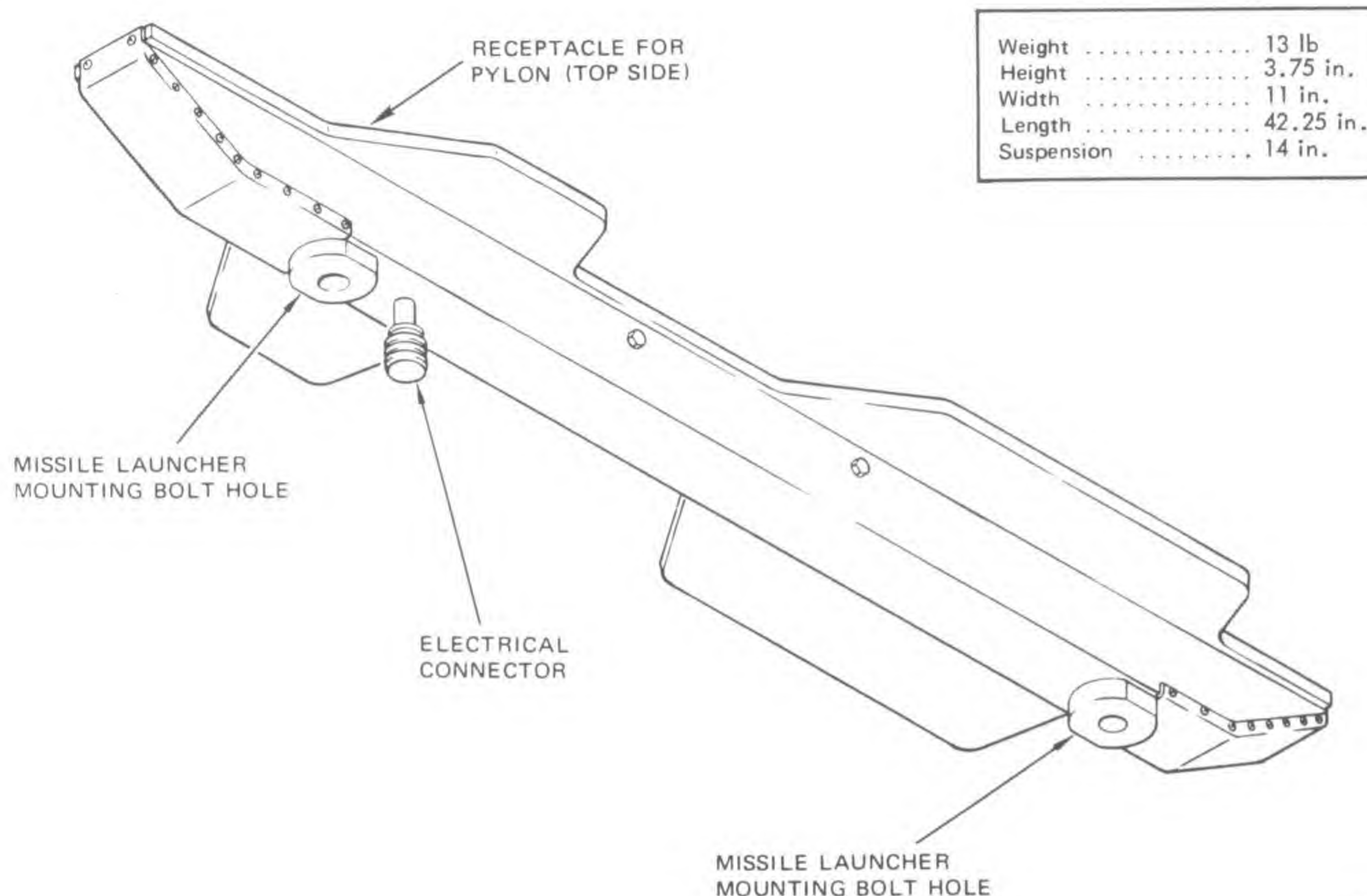
- 1 - Center aft
- 2 - Center forward
- 3 - Left aft
- 4 - Right aft
- 5 - Left forward
- 6 - Right forward



AV8A-75-(7)

Figure 2-22. A/A37B-3 Practice Multiple Bomb Rack





AV8A-75-(6)

Figure 2-23. ADU-299A/A Missile Launcher Adapter

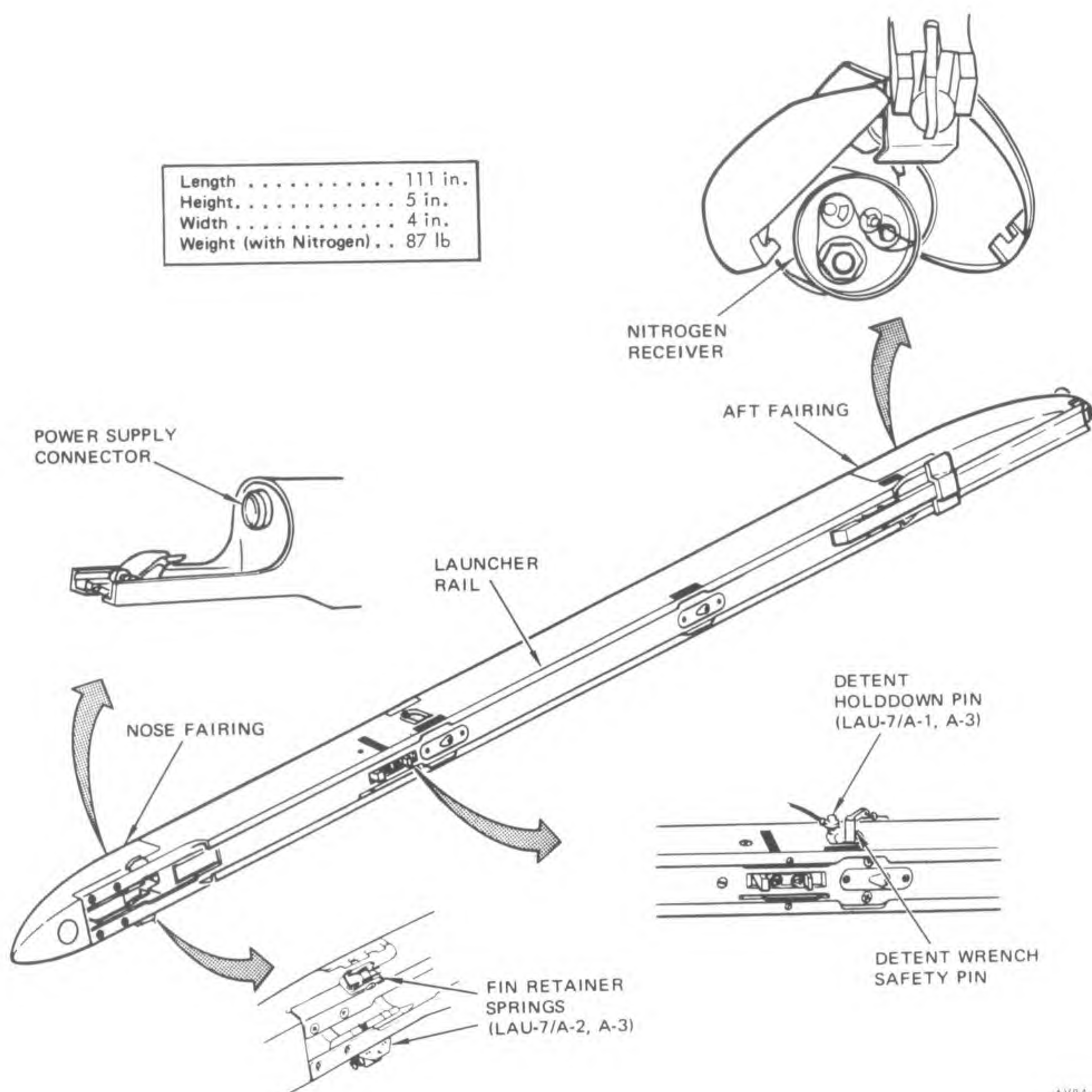
2-53. ADU-299A/A. The missile launcher adapter (figure 2-23) is suspended from the outboard pylons. The adapter is used to adapt the LAU-7 launcher to the ejector bomb rack. Mechanical attachment of the adapter to the ejector rack is provided by two suspension lugs 14 inches apart. Mechanical attachment of the adapter to the launcher is provided by two swivel nuts positioned on 30 inch centers to mate with the launcher bolts. When the launcher and adapter are electrically connected and mechanically mated, electrical power is supplied by an electrical cable from the wing pylon to the forward end of the adapter.

2-54. LAU-7, 7/A-2, and 7/A-3. The guided missile launcher (figure 2-24) provides a complete launching system for the AIM-9 guided missiles. A solenoid-operated detent lock prevents accidental release during takeoff and landing. Each launcher is equipped with a 3-phase (PP2315/A) power supply. The detent holddown pin does not interfere with raising of the

front leg of the detent during missile launch. The LAU-7/A-2 launcher (AAC-545) is equipped with fin retainer springs which immobilize the AIM-9 missile fins during flight. The LAU-7/A-3 launcher (AAC-537 and 545) has both the detent holddown pin and the fin retainer springs. A safety pin is provided to prevent on both launchers accidental firing of the missile while the aircraft is on the ground.

2-55. GUN POD. Two non-jettisonable gun pods (figure 2-25) are mounted one on each side of the lower fuselage. Each gun pod contains a 30MM Aden gun and an ammunition capacity of 130 rounds. The guns are electrically fired and controlled. Either one or both guns can be selected. Empty cases and links are ejected overboard as the gun fires. Each gun pod is boresighted while removed from the aircraft. This permits the gun pods to be interchangeable between airplanes without affecting boresight. Also, the gun within the pod may be changed without affecting the boresight.



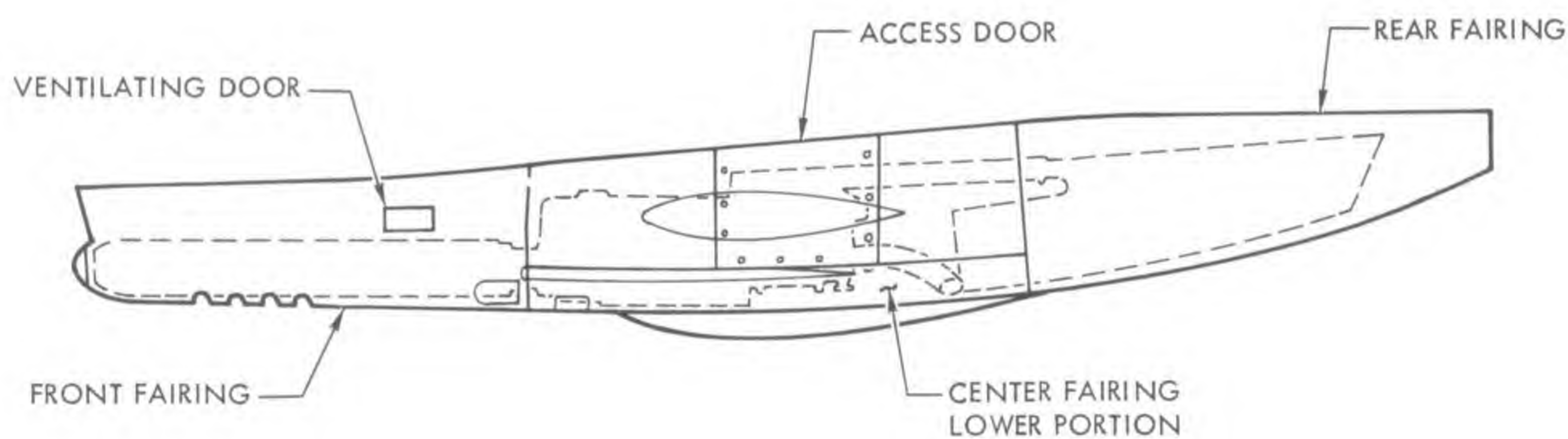
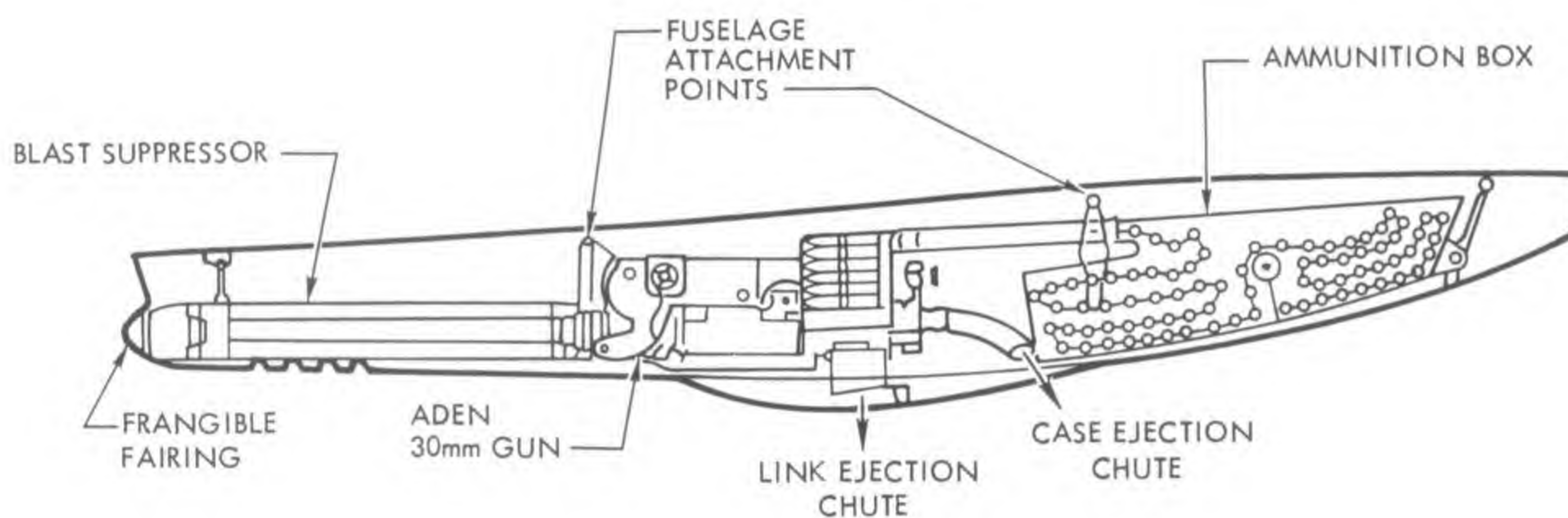
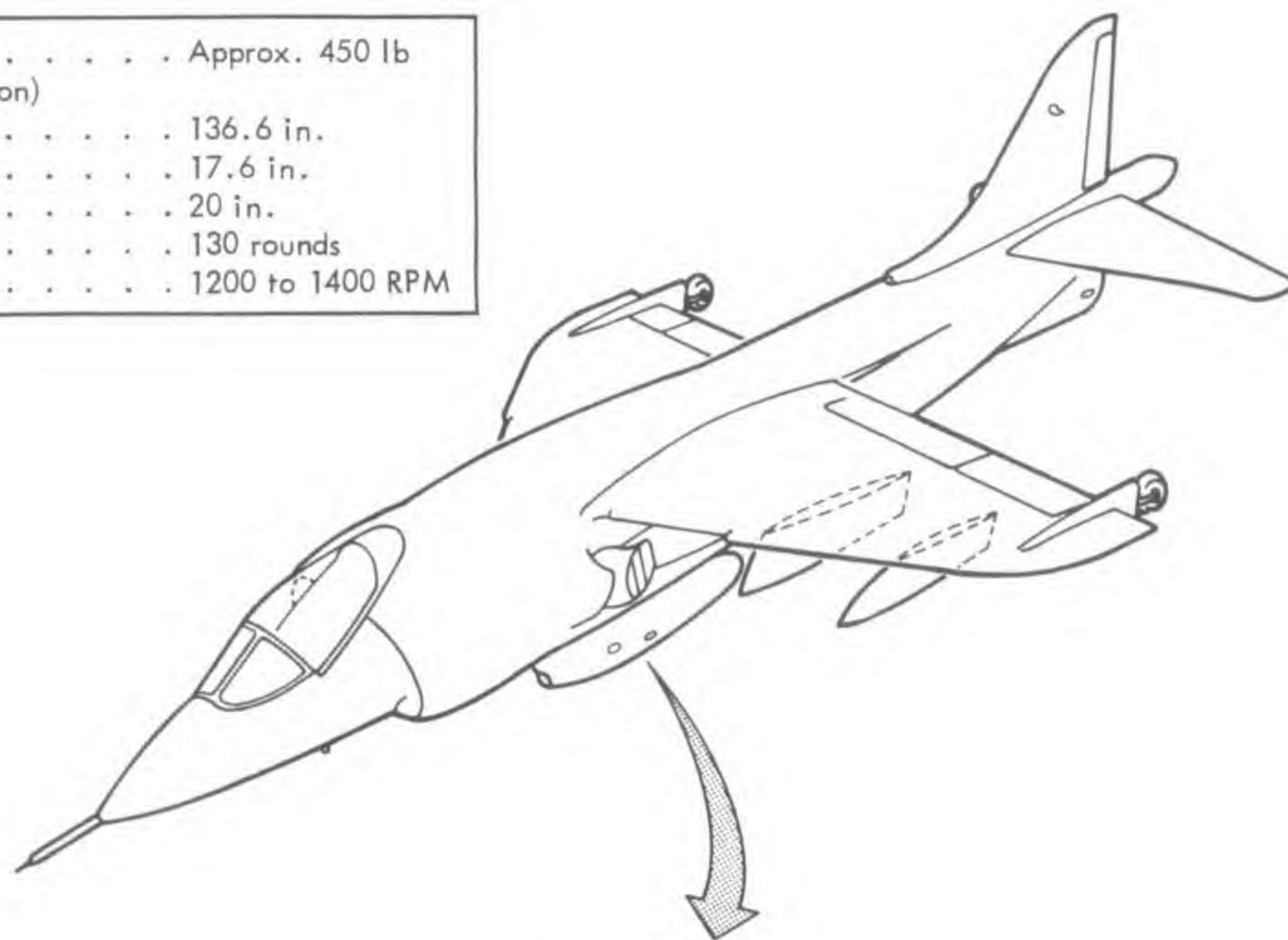


AV8A-75-111

Figure 2-24. LAU-7 Series Missile Launcher



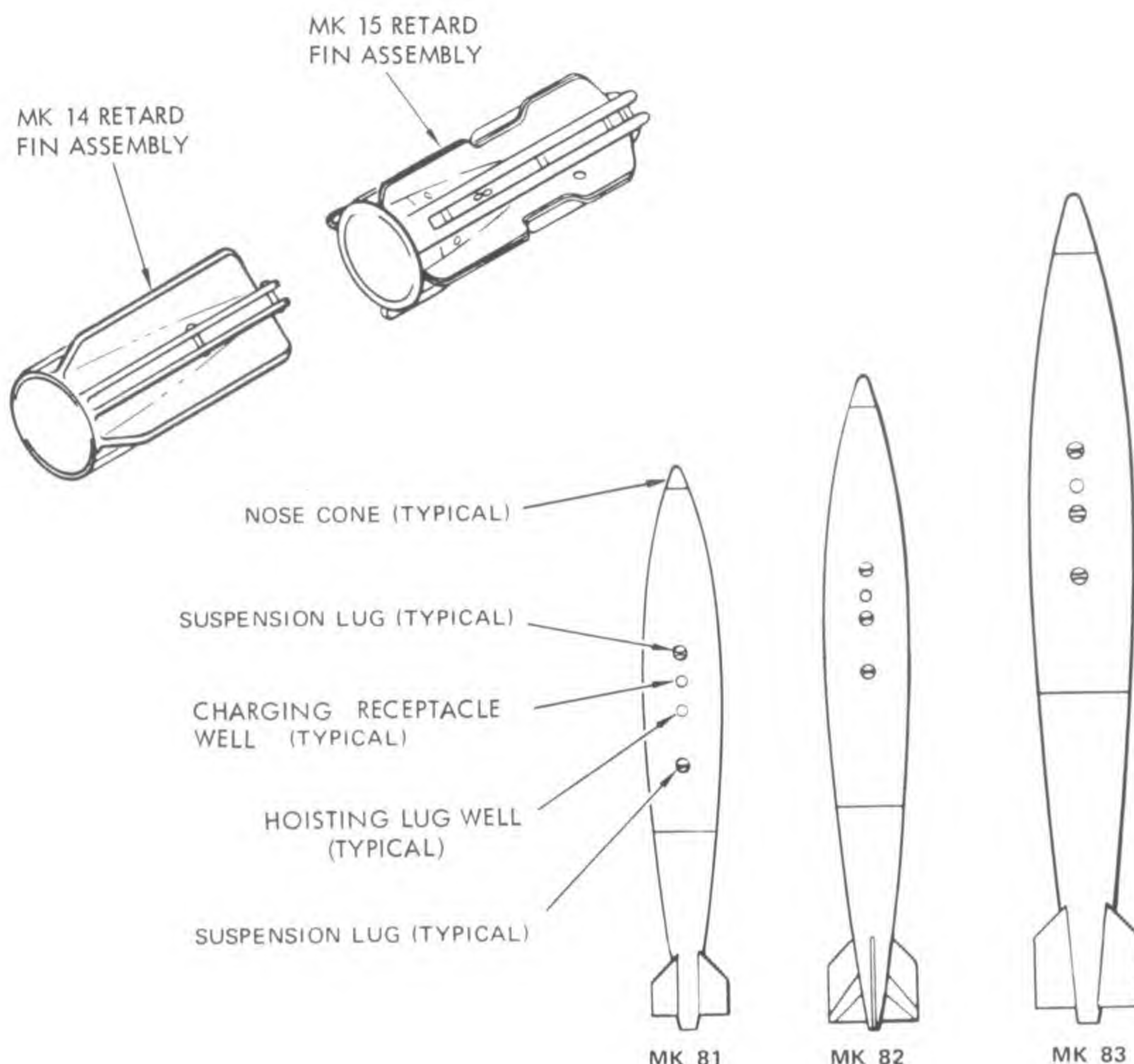
Weight . . . . .	Approx. 450 lb
(Gun, Pod, Ammunition)	
Length . . . . .	136.6 in.
Width . . . . .	17.6 in.
Depth . . . . .	20 in.
Capacity . . . . .	130 rounds
Rate of Fire . . . . .	1200 to 1400 RPM



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Figure 2-25. Gun/Gun Pod





Diameter	9 in.	10.75 in.	14 in.
Suspension	14 in.	14 in.	14 in.
Conical Fin Assembly: DOD	F620	F624	F627
Weight	260 lb.	531 lb.	985 lb.
Length	74.1 in.	86.90 in.	118.2 in.
Retard Fin Assembly	MK 14	MK 15	
Weight	305 lb.	565 lb.	
Length	75.10 in.	89.35 in.	

AV8A-75-(4)

Figure 2-26. MK 80 Series Low Drag General Purpose Bombs

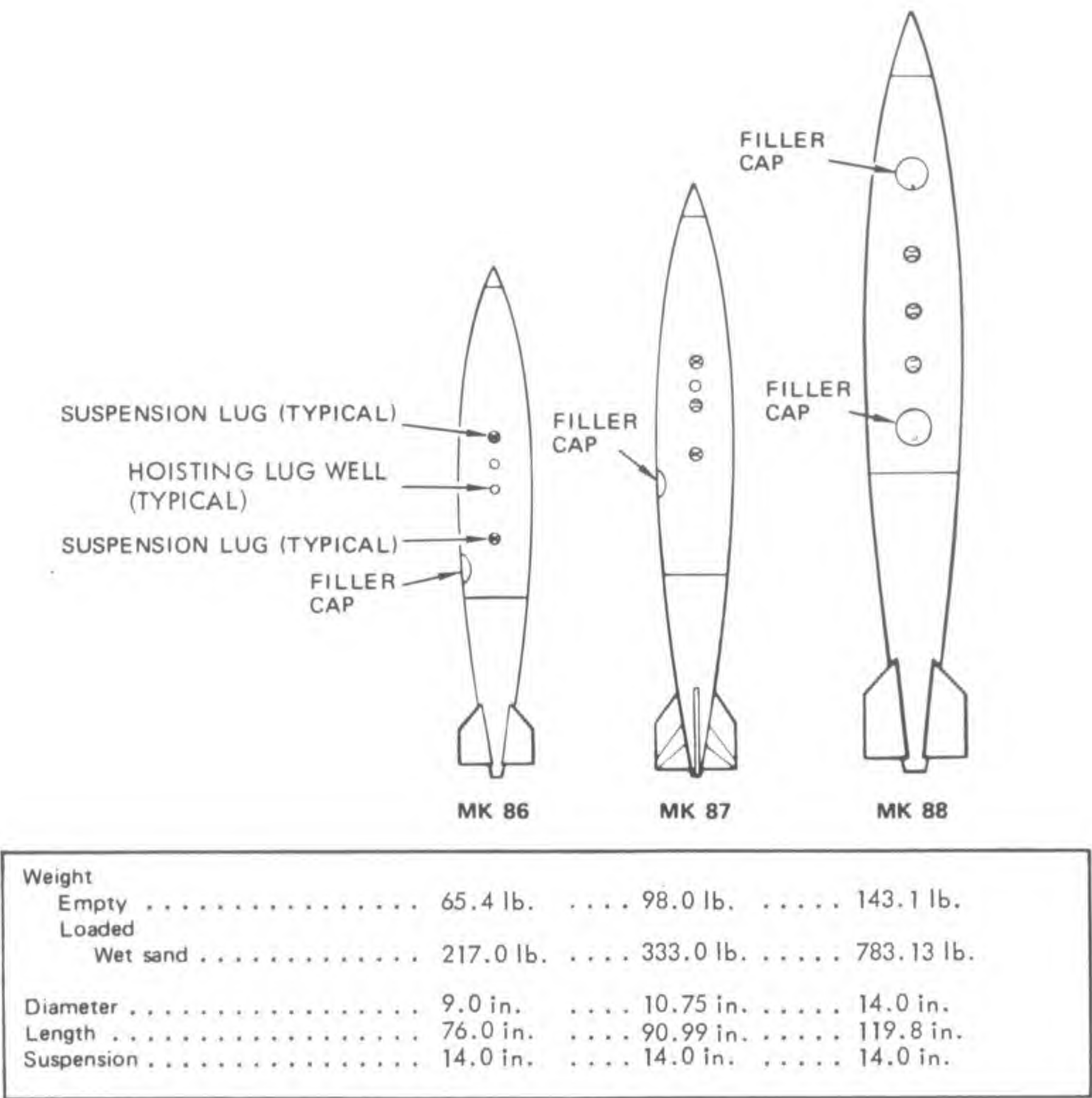
## 2-56. WEAPONS AND STORES.

2-57. The weapons and stores presented provide a pictorial view of the weapons and stores loaded by this manual with a brief description of their physical characteristics. These weapons and stores are as follows:

2-58. The MK 81, MK 82 and MK 83 low drag general purpose bombs (figure 2-26) are general purpose

bombs which will produce blast, fragmentation, and deep cratering effect. Their functions are determined by the action of the fuzes and fuze components with which they are armed. These bombs have a long slender cylindrical metal body to which a conical fin is attached. Normally, general purpose bombs use a nose fuze and a tail fuze to increase functioning reliability. These bombs are attached to ejector rack unit by suspension lugs spaced 14 inches apart.





AV8A-75-(3)

Figure 2-27. MK 80 Series Practice Bombs

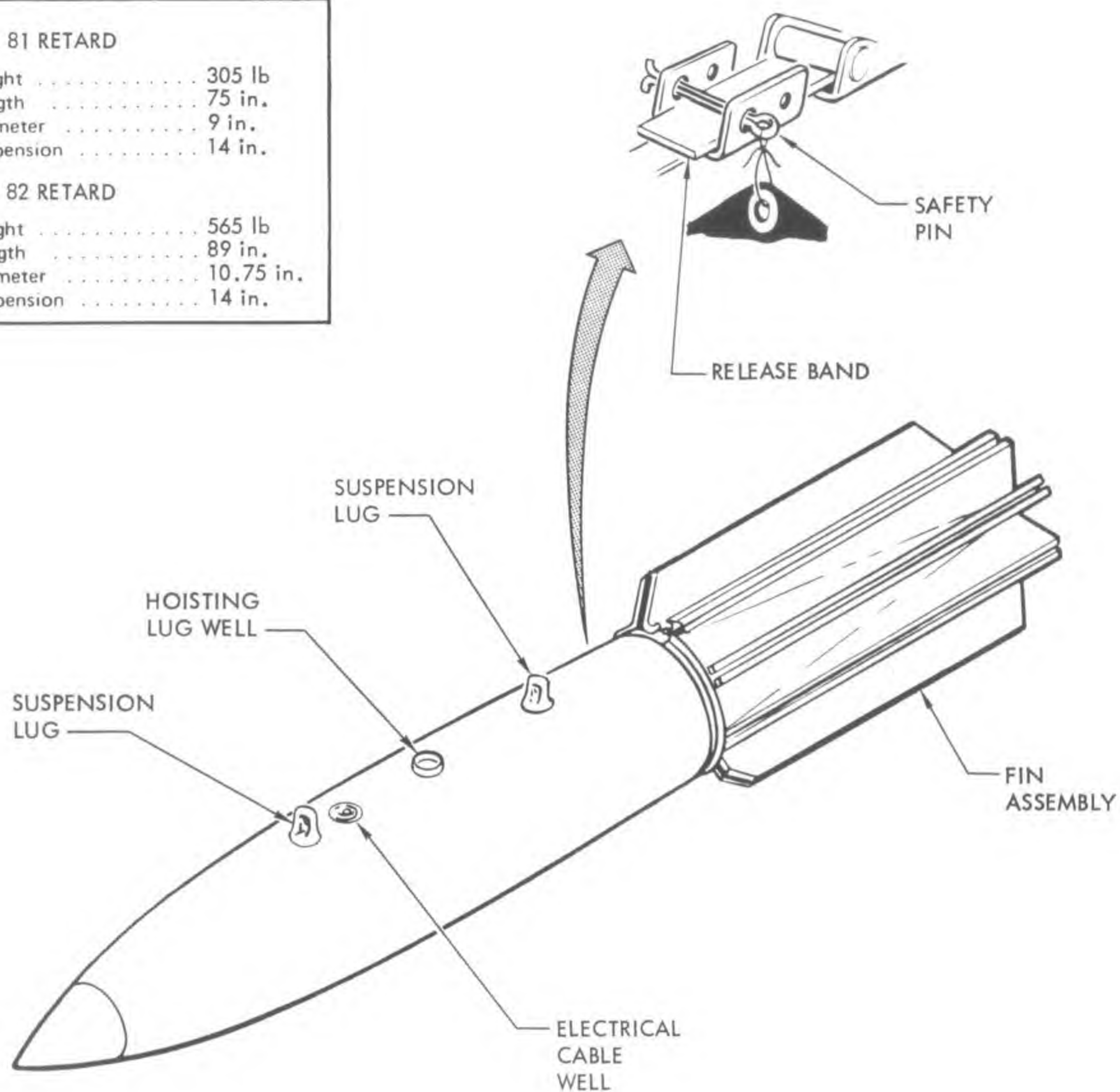
2-59. The MK 86, 87, and 88 practice bombs (figure 2-27) are low-drag bombs with the same size and shape as the MK 81, 82, and 83 low-drag general purpose bombs. A filler hole is located on one side, aft of the cylindrical section. The bombs are filled with wet sand.

2-60. The MK 81 and MK 82 Retard bombs (figure 2-28) are retarded MK 81 and MK 82 low-drag gener-

al purpose bombs. The MK 81 bomb uses a MK 14 fin assembly. The MK 82 uses a MK 15 fin assembly. Arming wire arrangements can be made to achieve a retarded or non-retarded capability. The fin release band is held in place by a safety cotter pin which must remain installed until arming wire installation.



<b>MK 81 RETARD</b>	
Weight .....	305 lb
Length .....	75 in.
Diameter .....	9 in.
Suspension .....	14 in.
<b>MK 82 RETARD</b>	
Weight .....	565 lb
Length .....	89 in.
Diameter .....	10.75 in.
Suspension .....	14 in.



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Figure 2-28. MK 81 and MK 82 Retard Bombs



Length . . . . .	83.35 in.
Diameter . . . . .	10.75 in.
Weight . . . . .	572 lb
Suspension . . . . .	14 in.

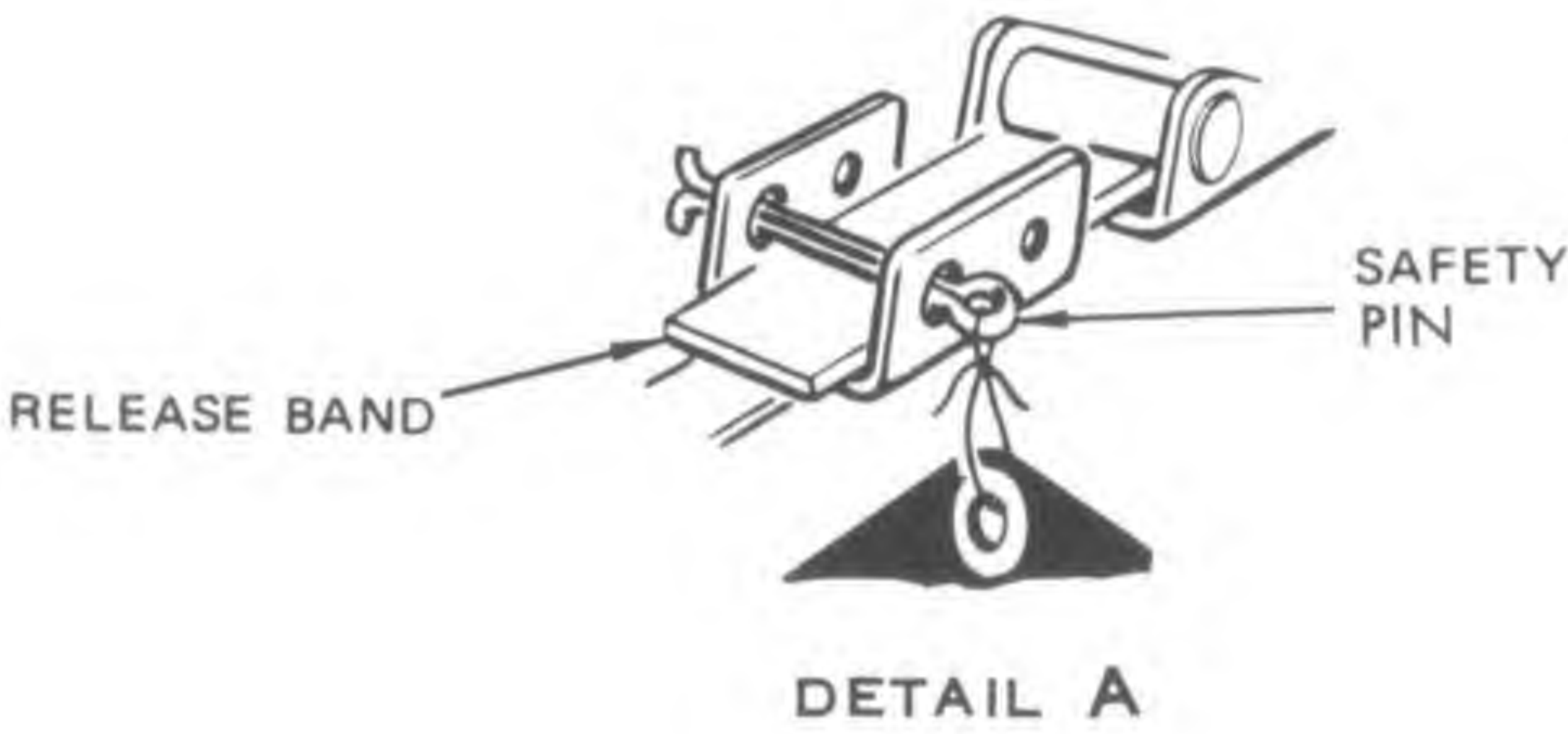
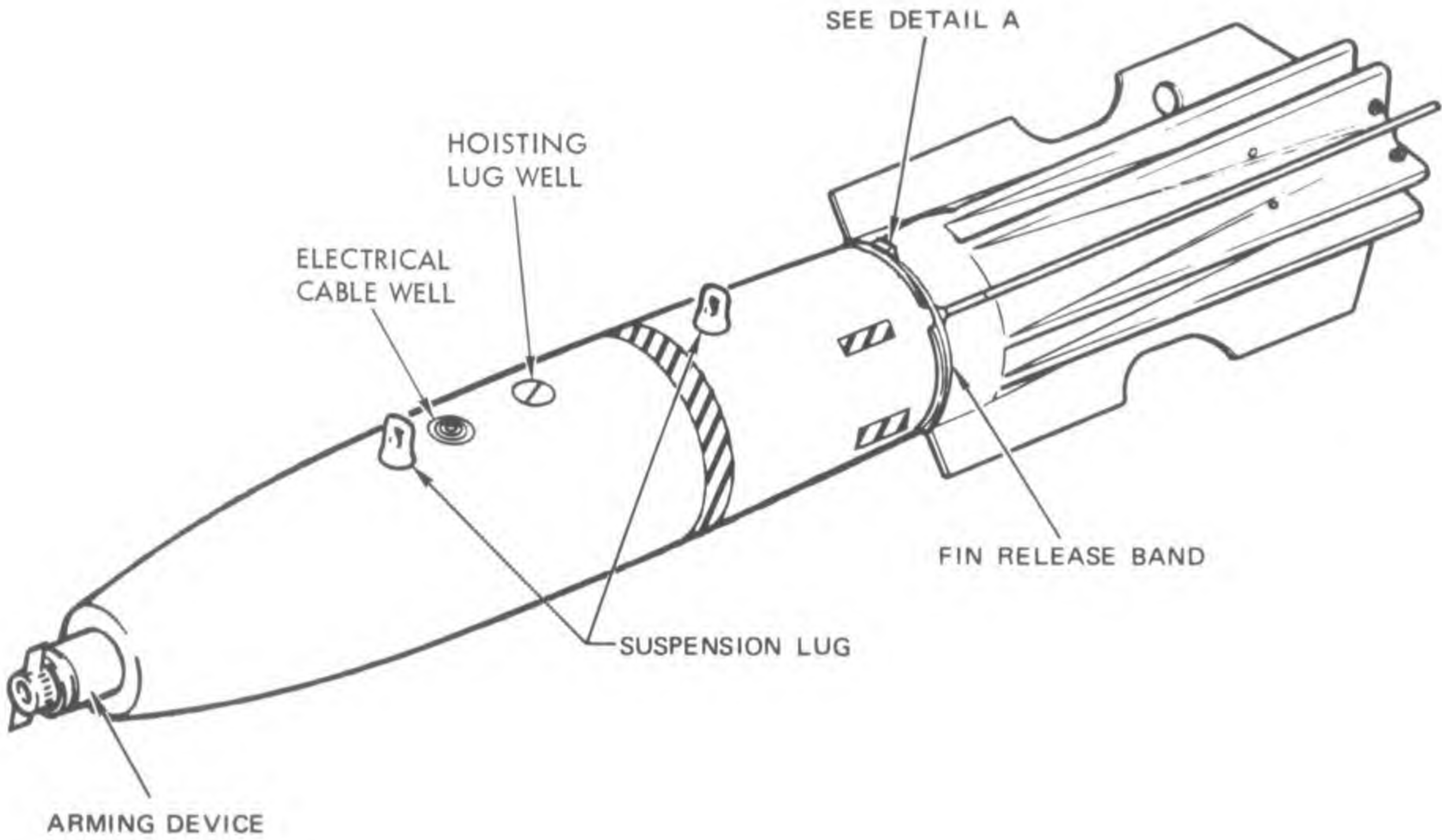
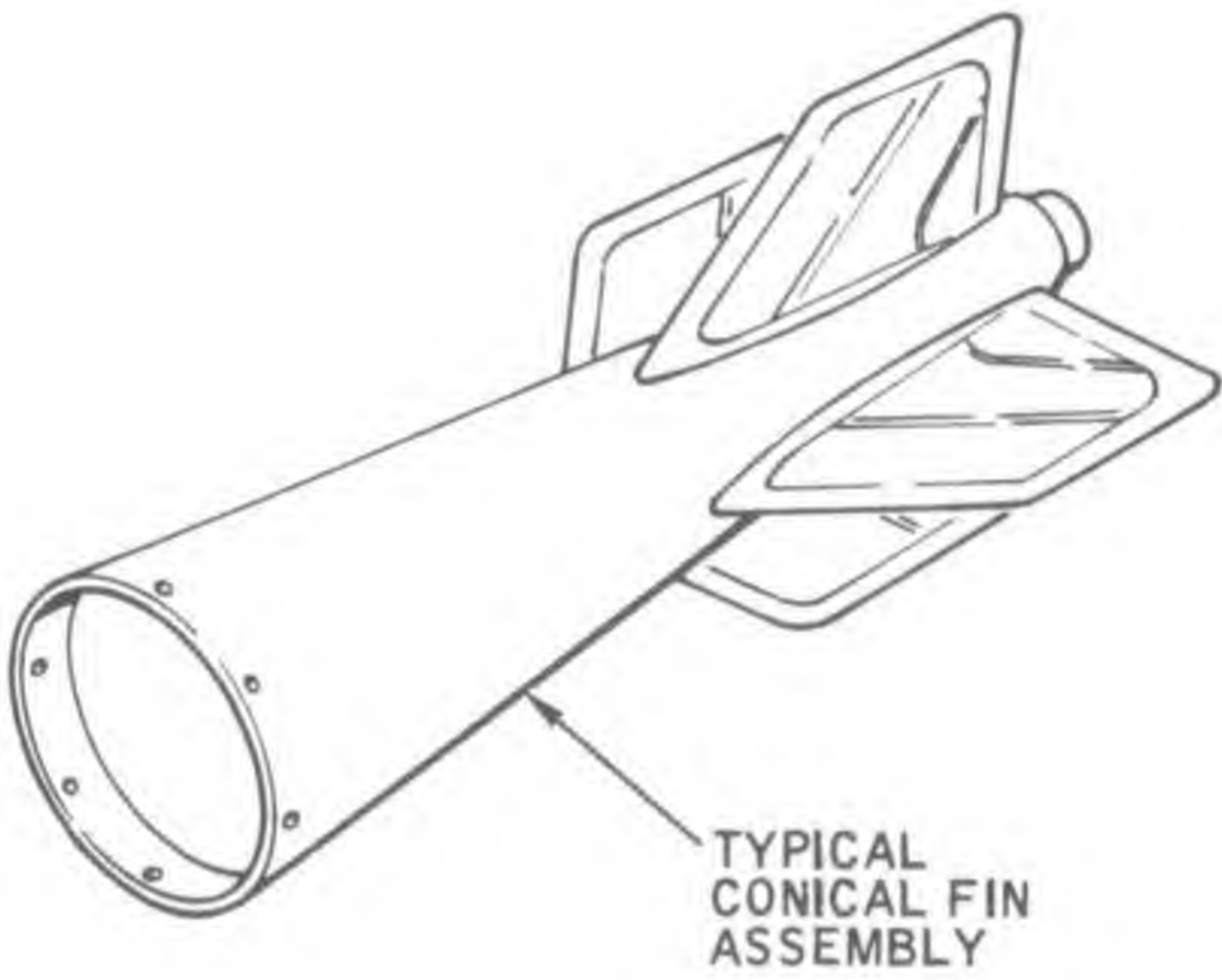
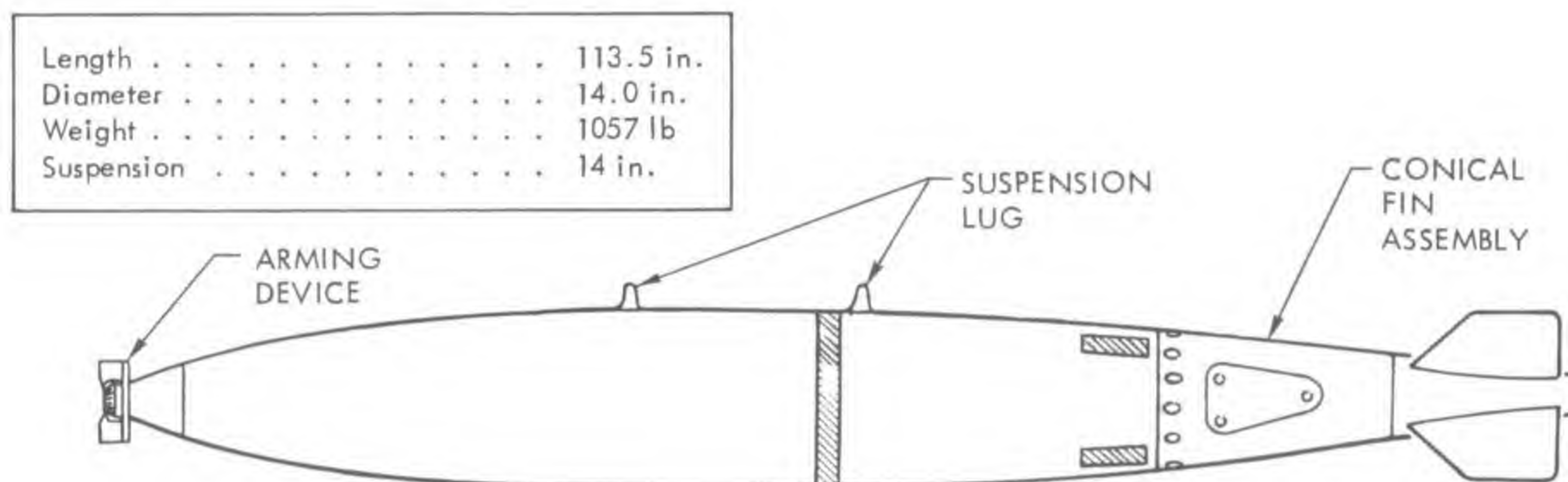


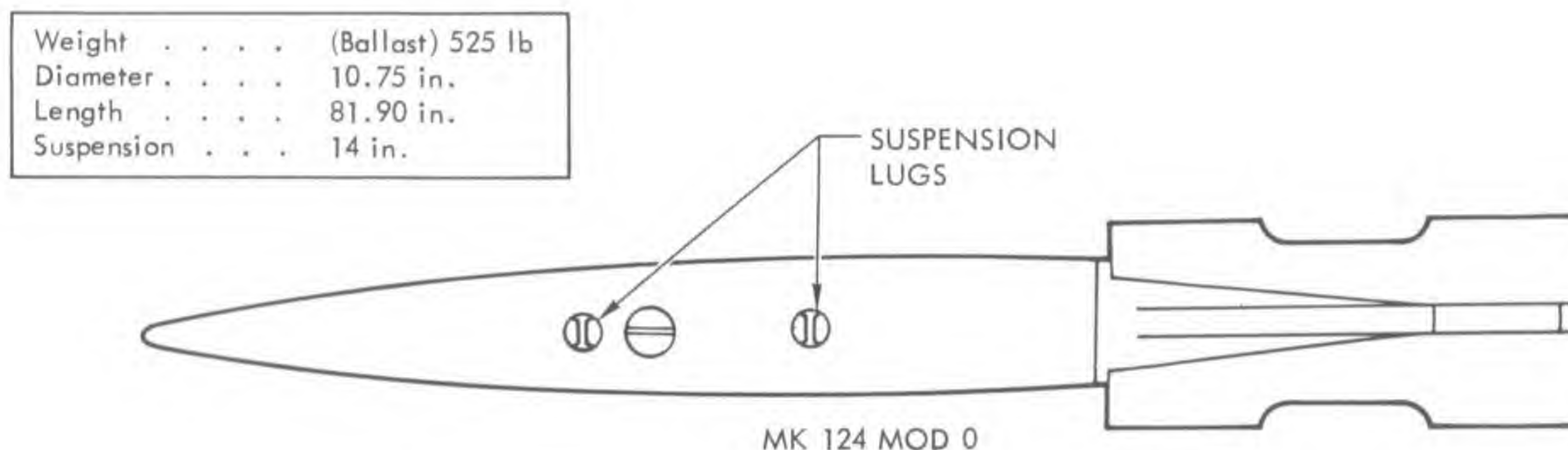
Figure 2-29. MK 36 Destructor





AV8A-75-(28)

Figure 2-30. MK 40 Destructor



AV8A-75-(27)

Figure 2-31. MK 124 Practice Bomb

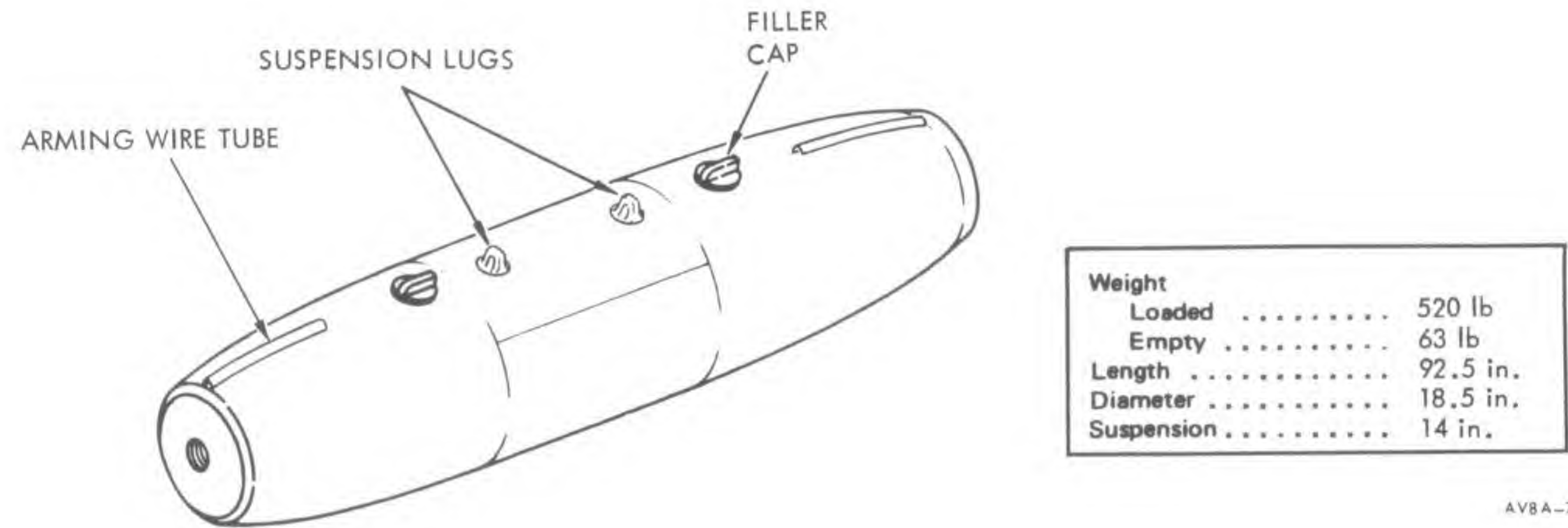
2-61. The MK 36 MODS 0, 1, 2 and 3 Destructors (figure 2-29) consists of a MK 82 bomb body, an arming device, a firing mechanism and a tail assembly. The MK 36 MOD 0 destructor has a MK 30 arming device. The MK 36 MOD 1 can have a MK 30 or MK 32 arming device. The MK 36 MODS 2 and 3 have a MK 32 arming device. The arming device determines the type of fin that may be installed and the arming wire installation. Destructors with a MK 30 arming device must have a MK 15 fin assembly and arming wires installed for retard only. Destructors with a MK 32 arming device can have a conical or a MK 15 fin assembly installed.

2-62. The MK 40 MODS 1, 2 and 3 Destructors (figure 2-30) consists of a MK 83 bomb body, an arming

device, a firing mechanism and a tail assembly. The MK 40 MOD 1 can have a MK 32 arming device. The MK 40 MODS 2 and 3 have a MK 32 arming device and utilize a conical fin.

2-63. The MK 124 MOD 0 practice bomb (figure 2-31) is a full scale retarded 500 pound general purpose bomb. It is made up of two sections: the forward section is the bomb, and the aft section is the fin assembly. The forward section has a slender body with a pointed nose and a tapered aft end to which a fin assembly is attached. The MK 15 MOD 1 fin assembly (retard) is attached to the bomb by a retaining ring. The MK 15 MOD 3 and subsequent fin assemblies is attached to the bomb by set screws. The bomb is filled with concrete ballast.

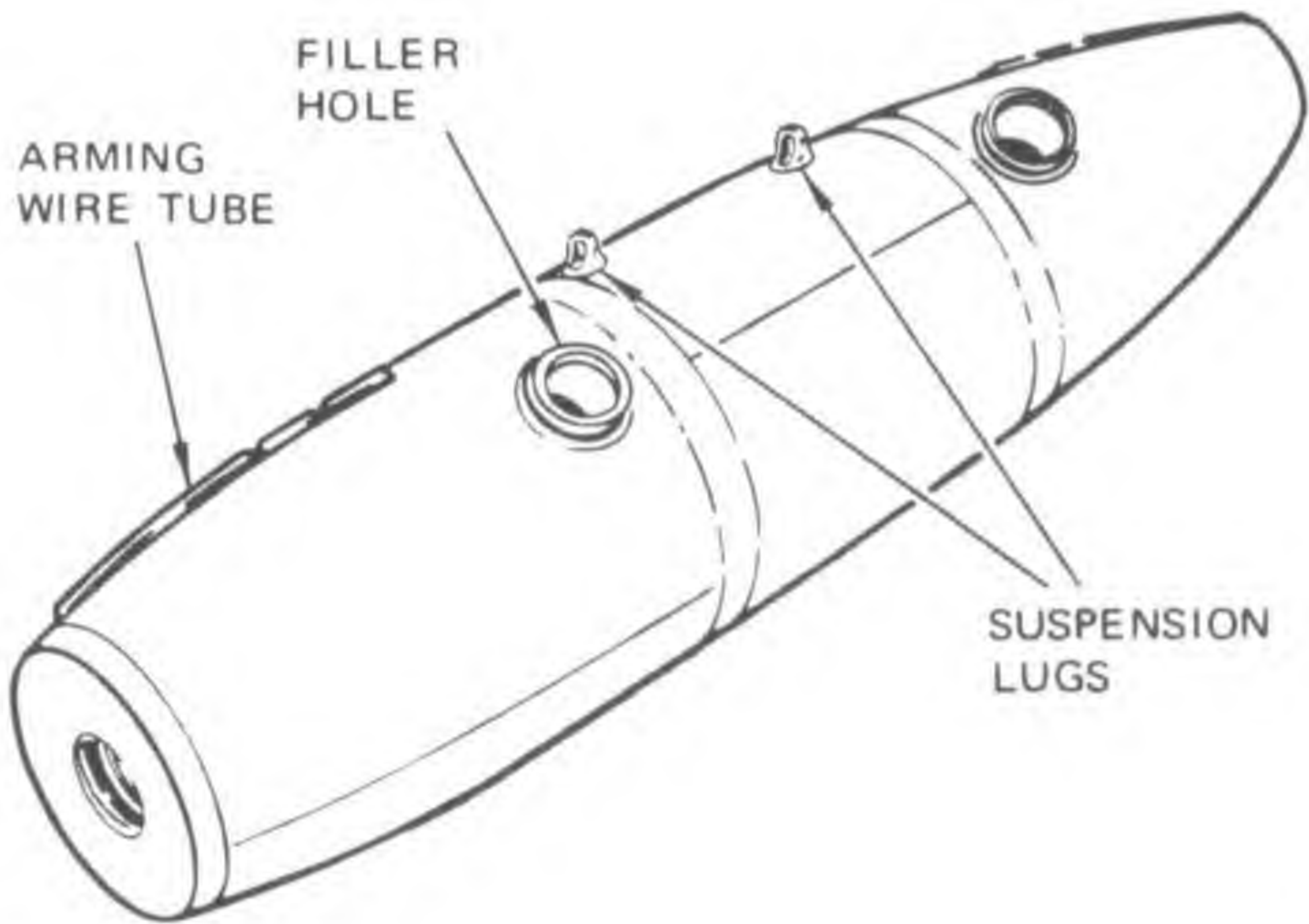




AV8A-75-(29)

Figure 2-32. MK 77 MOD 2 Fire Bomb

Weight	
Loaded	520 lb
Empty	63 lb
Length	81 in.
Diameter	18 in.
Suspension	14 in.



AV8A-75-(31)

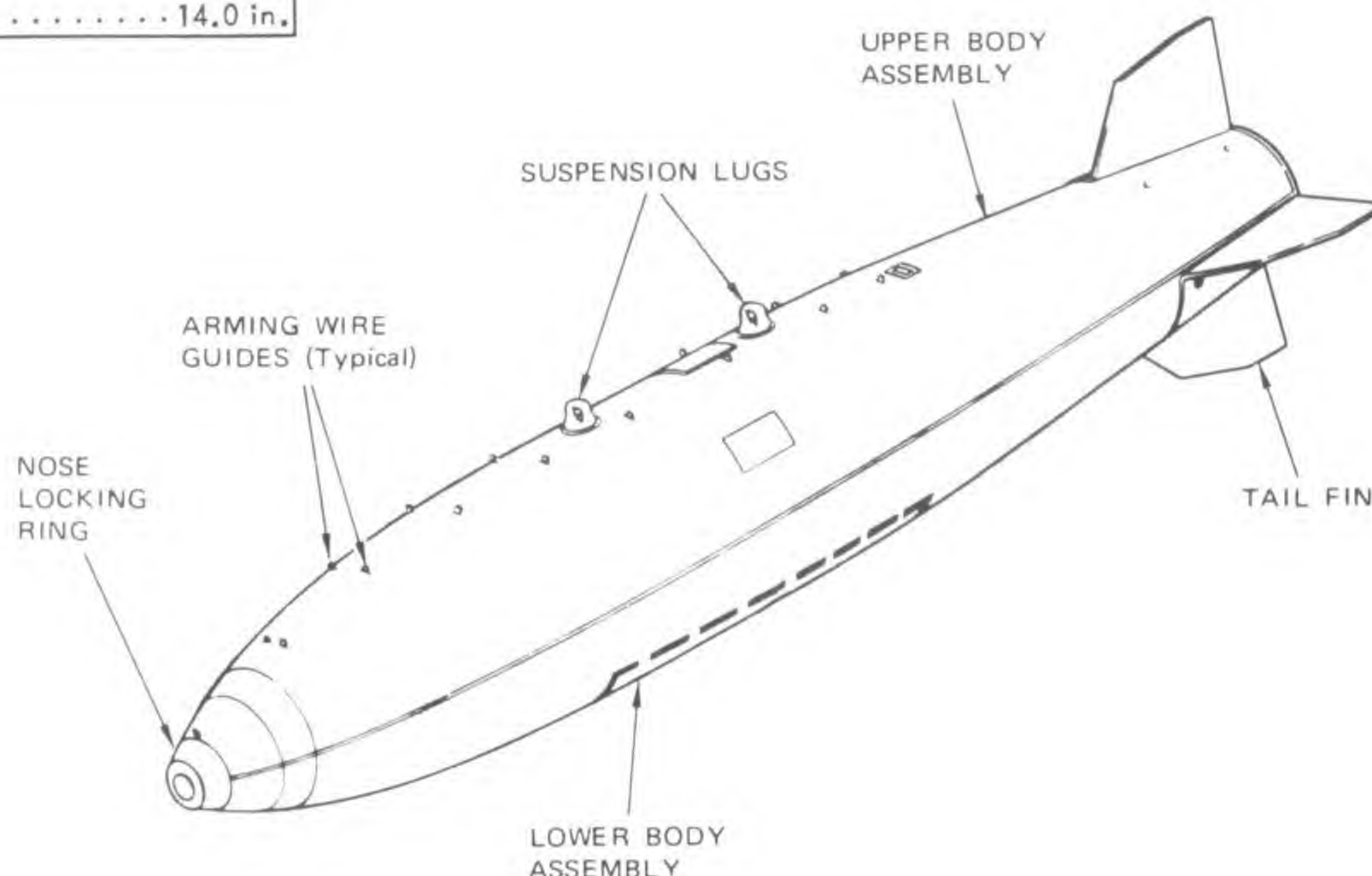
Figure 2-33. MK 77 MOD 4 Fire Bomb

2-64. The MK 77 MOD 2 fire bomb (figure 2-32) is a nonstabilized cigar-shaped incendiary air munition constructed of aluminum and designed for external carriage on aircraft with forced ejection release systems. Two screw-in suspension lugs are mounted on the welded body section to provide 14-inch suspension. Arming release wires are routed to the nose and tail of the bomb through internal tubes. Igniters and fuzes are utilized in both nose and tail of the bomb, and adapters are provided so that required igniters with required fuzes can be used. Two gasket sealed filler holes with filler caps are located on the bomb upper body section. The bomb, which has a 75-gallon capacity, is filled with gasoline gel. Once filled, the bomb cannot be disassembled and must be either used or disposed of according to local policy.

2-65. The MK 77 MOD 4 fire bomb (figure 2-33) is a nonstabilized, 75-gallon capacity bomb similar to the MK 77 MOD 2. The MOD 4 differs from the MOD 2 in that the nose cone and M15 igniter adapters have been removed, and the filler holes have been moved from their position in line with the suspension lugs and placed 31° down the side of the bomb. Each filler hole can be sealed with a filler cap or a fuze, igniter and a retainer ring. The bomb has provisions for an alternate arming system utilizing a fuze and igniter in the nose and tail wells. Once filled, the bomb cannot be disassembled and must be used or disposed of according to local policy.



Length . . . . .	93.0 in.
Diameter . . . . .	16.0 in.
Weight . . . . .	830.0 lb
Suspension . . . . .	14.0 in.



AV8A-75-(30)

Figure 2-34. CBU-24, CBU-29 and CBU-49 Cluster Bombs

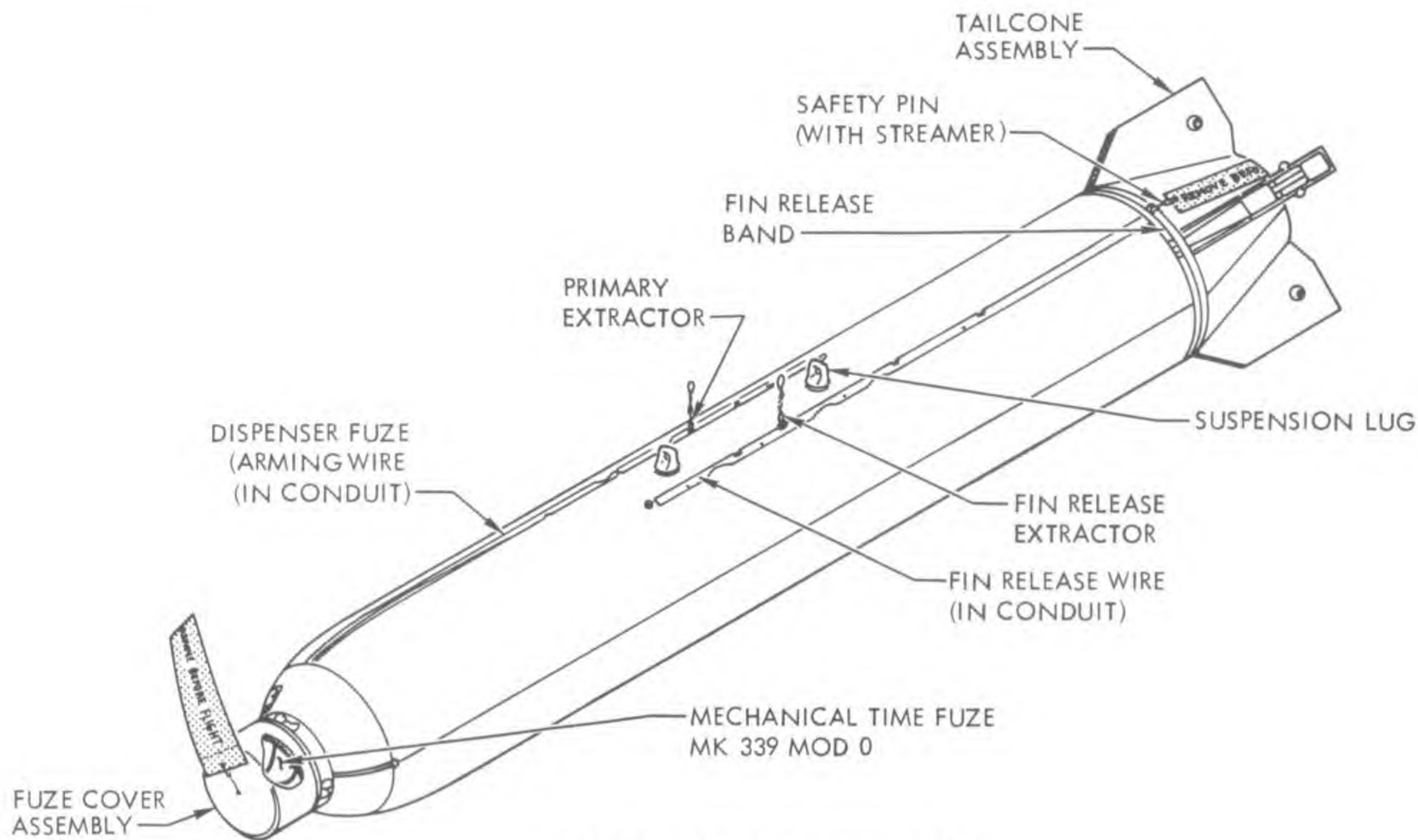
2-66. The CBU-24B, -24A/B, -24/B (MOD), -24C/B, -29B, -29A/B, -29/B (MOD), -49B, -49A/B, -49/B (MOD), and -49C/B (figure 2-34) are aircraft-launched, freefall, unguided cluster bombs. They are released from the aircraft in the same manner as a standard general purpose bomb. When the CBU is released from the aircraft, the arming wire is withdrawn, initiating the fuze time delay cycle. When the fuze functions, the booster is ignited and the fuze nose caps are blown forward, unlocking the forward end of the dispenser. Ram air forces, acting on the dispenser, force the two halves apart. The payload is instantly dispersed for freefall.

2-67. The MK 20 MOD 2/3 Rockeye cluster bomb (figure 2-35) is a freefall weapon with mechanical fuzing. The bomb consists of a MK 7 MOD 2 dispenser loaded with MK 118 MOD 0 antitank bombs. The cluster bomb is delivered completely assembled with suspension lugs, arming wire with extractors,

fuze, and a removable fuze protective cover. The tail assembly has four movable spring-actuated fins that are held in the folded position by a fin release band. The fin release band safety pin must be installed at all times during ground handling and loading operations.

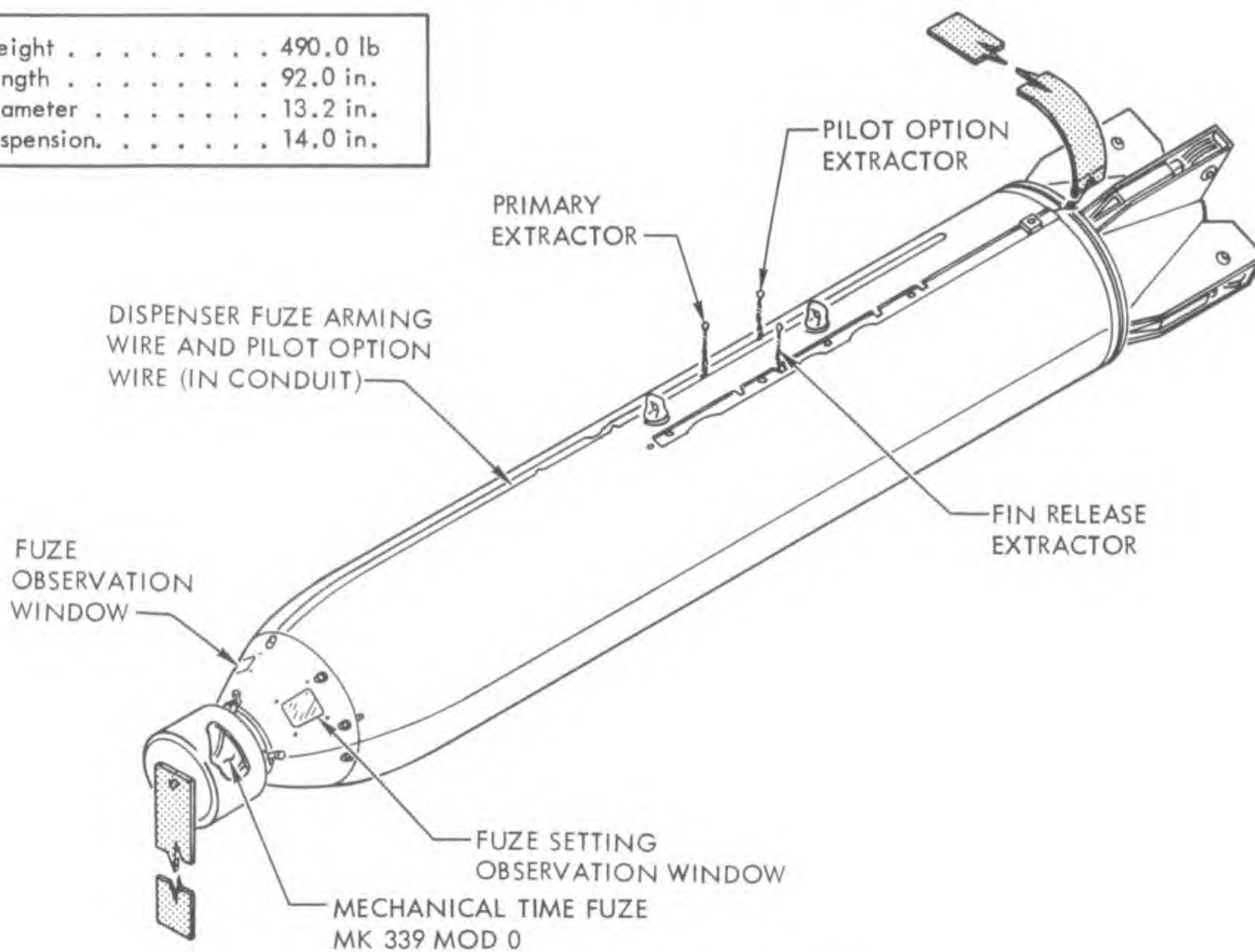
2-68. The MK 24 MODS 3 and 4 parachute flares (figure 2-36) are lanyard initiated, aluminum encased, delay flares. Each flare contains a variable delay ejection and a variable delay ignition fuze. Upon ejection from the SUU-40/44 dispenser the drogue tray is separated from the flare by the airstream pulling the arming lanyard. After a preset delay, the ejection fuze ejects the flare candle assembly and parachute assembly from the outer container. After another preset delay, the ignition fuze ignites the flare candle and approximately 2-million candle power is produced for 2.5 minutes.





**MK 20 MOD 2 CLUSTER BOMB**

Weight . . . . .	490.0 lb
Length . . . . .	92.0 in.
Diameter . . . . .	13.2 in.
Suspension. . . . .	14.0 in.



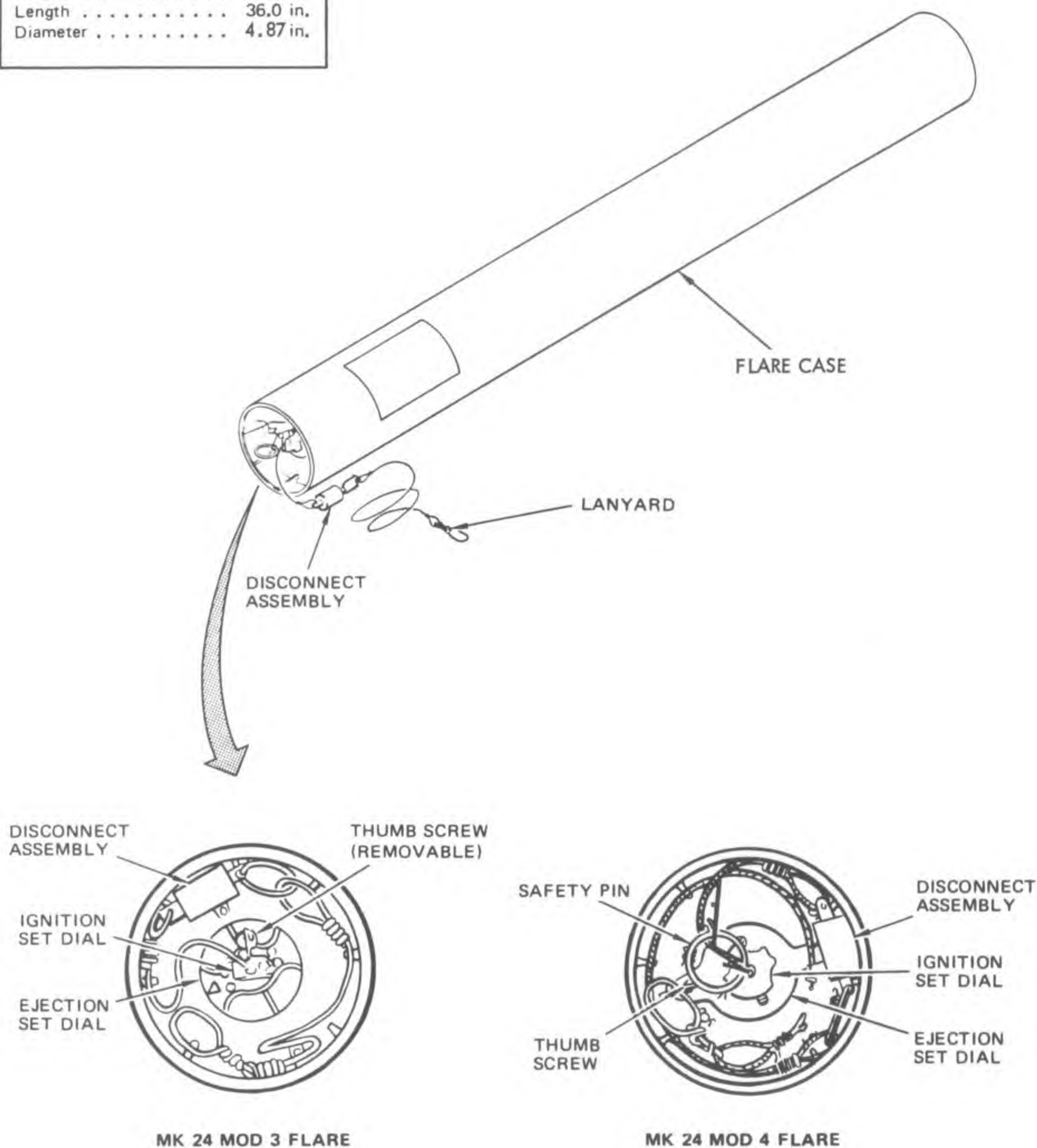
**MK 20 MOD 3 CLUSTER BOMB**

AV8A-75-(32)

Figure 2-35. MK 20 MOD 2/3 Cluster Bomb, Rockeye



Weight . . . . .	27.0 lb
Length . . . . .	36.0 in.
Diameter . . . . .	4.87 in.

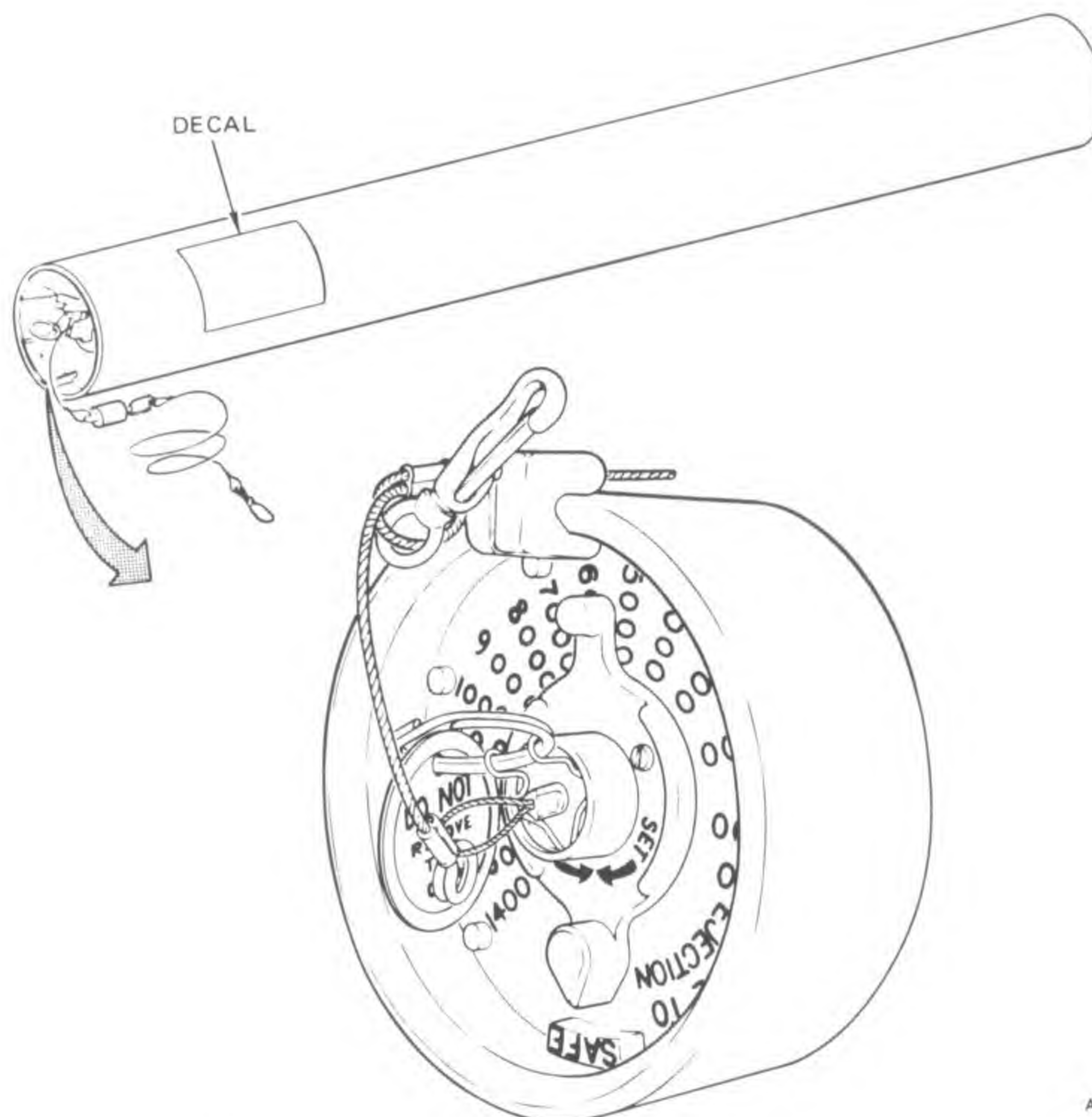


AV8A-75-(33)

Figure 2-36. MK 24 MOD 3 and 4 Parachute Flares



Weight . . . . .	28.0 lb
Length . . . . .	36.0 in.
Diameter . . . . .	4.87 in.



AV8A-75-(35)

Figure 2-37. MK 45 MOD 0 Parachute Flare

2-69. MK 45 MOD 0 Aircraft Parachute Flare. The MK 45 MOD 0 aircraft parachute flare (figure 2-37) was designed as a replacement for the MK 24 flare. The MK 364 MOD 0 fuze is shipped with the flare for the purpose of controlling the altitude of flare ejection. In this flare, candle ignition is controlled by the force exerted by the parachute as it opens. The fuze has 14 functional settings at 1000-foot increments and one at 500 feet. These settings control the approximate feet of fall between launch and ejection of the parachute assembly from the case. MK 45 flares shipped in drogue trays with an 8-inch lanyard are manufactured for use with SUU-40/A or SUU-44/A flare dispensers.

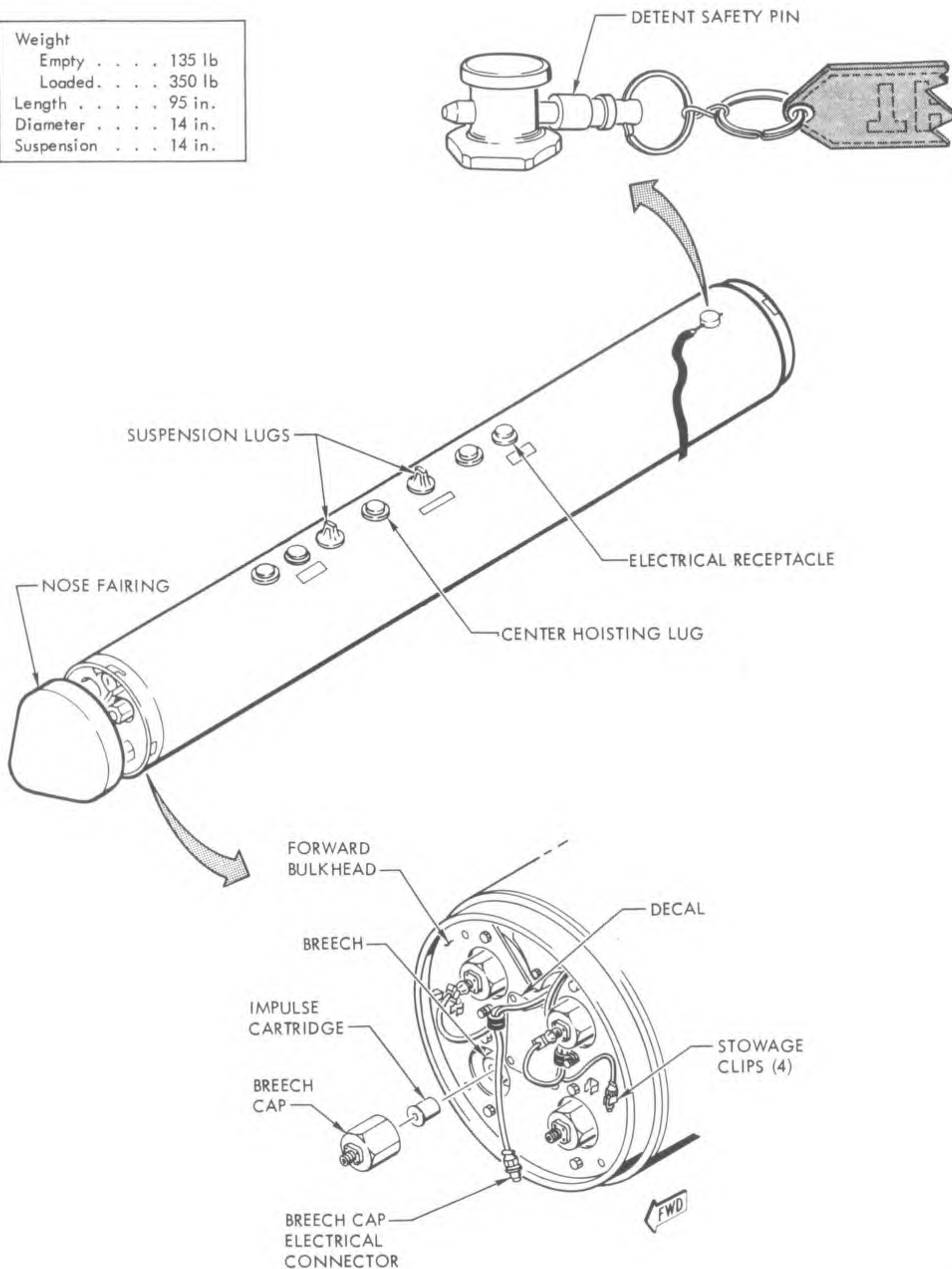
2-70. The SUU-40/A flare dispenser (figure 2-38) has the capability of carrying and forceably ejecting eight MK 24/45 flares. The dispenser is composed of a nose cone, four breech cap assemblies mounted on the forward bulkhead, four ejector tubes, and four shear latches are mounted on the aft bulkhead. Each

of the four tubes accommodates two flares. Flare ejection force is provided by a cartridge installed in each breech. Cartridge firing exerts force against the two flares in the tube. The flares move aft with sufficient force to shear the shear pin of the latch assembly located on the aft bulkhead, and the flares are ejected into the airstream.

2-71. The SUU-44/A flare dispenser (figure 2-39) has the capability of carrying and forceably ejecting eight MK 24/45 flares. The dispenser is composed of a nose cone, four breech cap assemblies mounted on the forward bulkhead, four ejector tubes, and four shear latches are mounted on aft bulkhead. Each of the four tubes accomodates two flares. Flare ejection force is provided by a cartridge installed in each breech. Cartridge firing exerts force against the two flares in the tube. The flares move aft with sufficient force to shear the shear pin of the latch assembly located on the aft bulkhead, and the flares are ejected into the airstream.



Weight	
Empty . . . .	135 lb
Loaded . . . .	350 lb
Length . . . .	95 in.
Diameter . . . .	14 in.
Suspension . . . .	14 in.

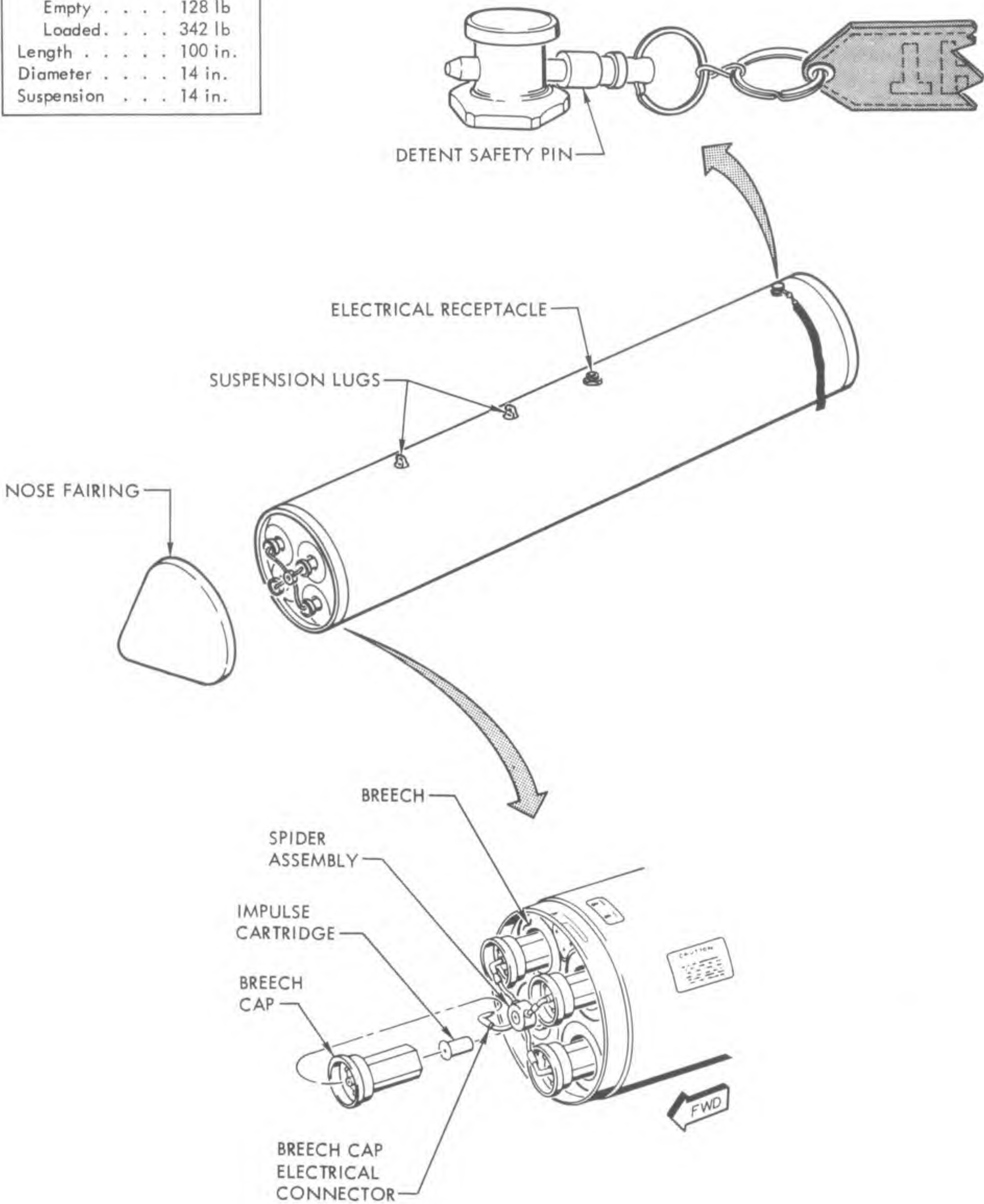


AV8A-75-(34)

Figure 2-38. SUU-40 Flare Dispenser



Weight	
Empty . . . .	128 lb
Loaded . . . .	342 lb
Length . . . .	100 in.
Diameter . . . .	14 in.
Suspension . . . .	14 in.

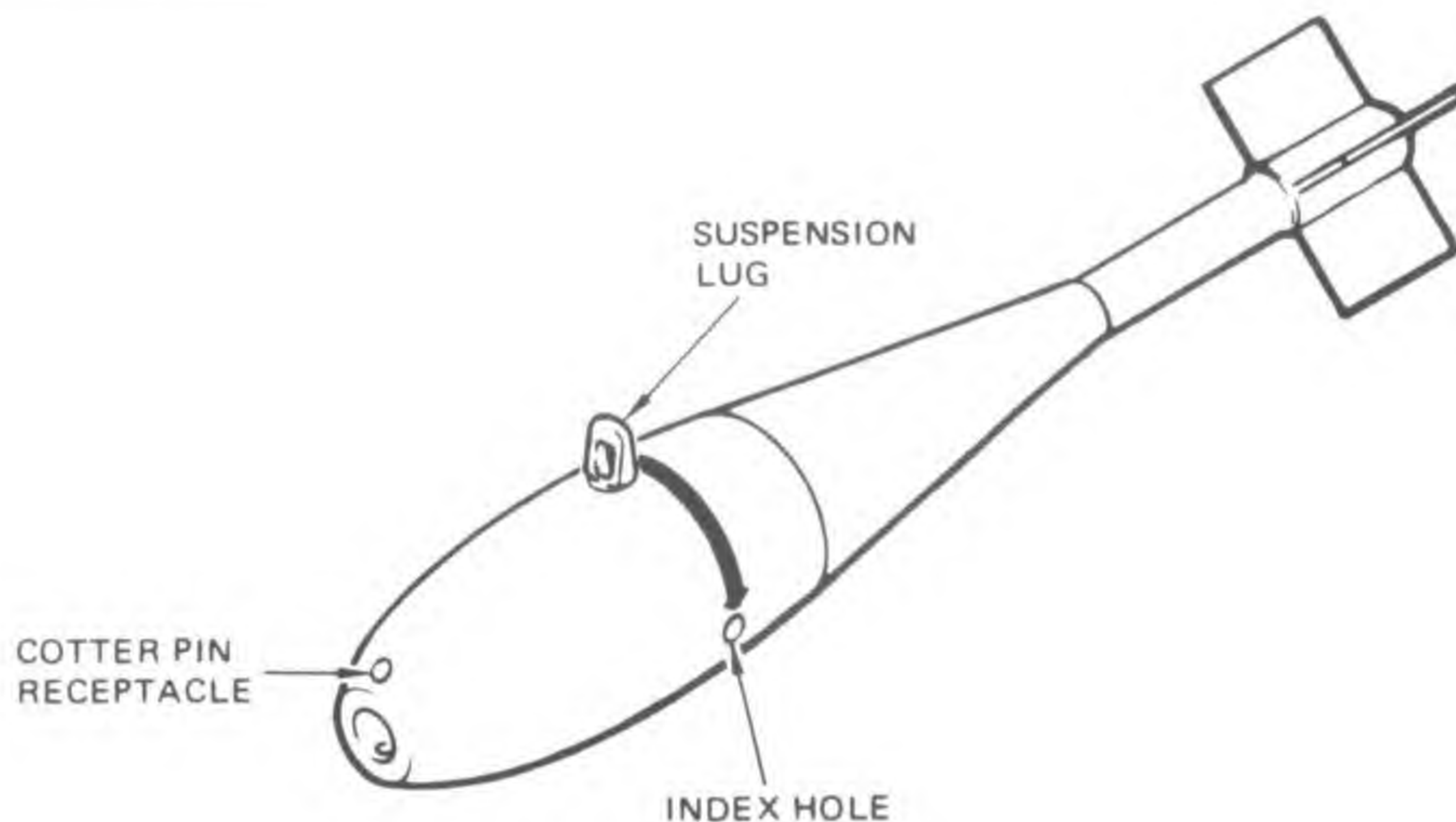


AV8A-75-(36)

Figure 2-39. SUU-44 Flare Dispenser



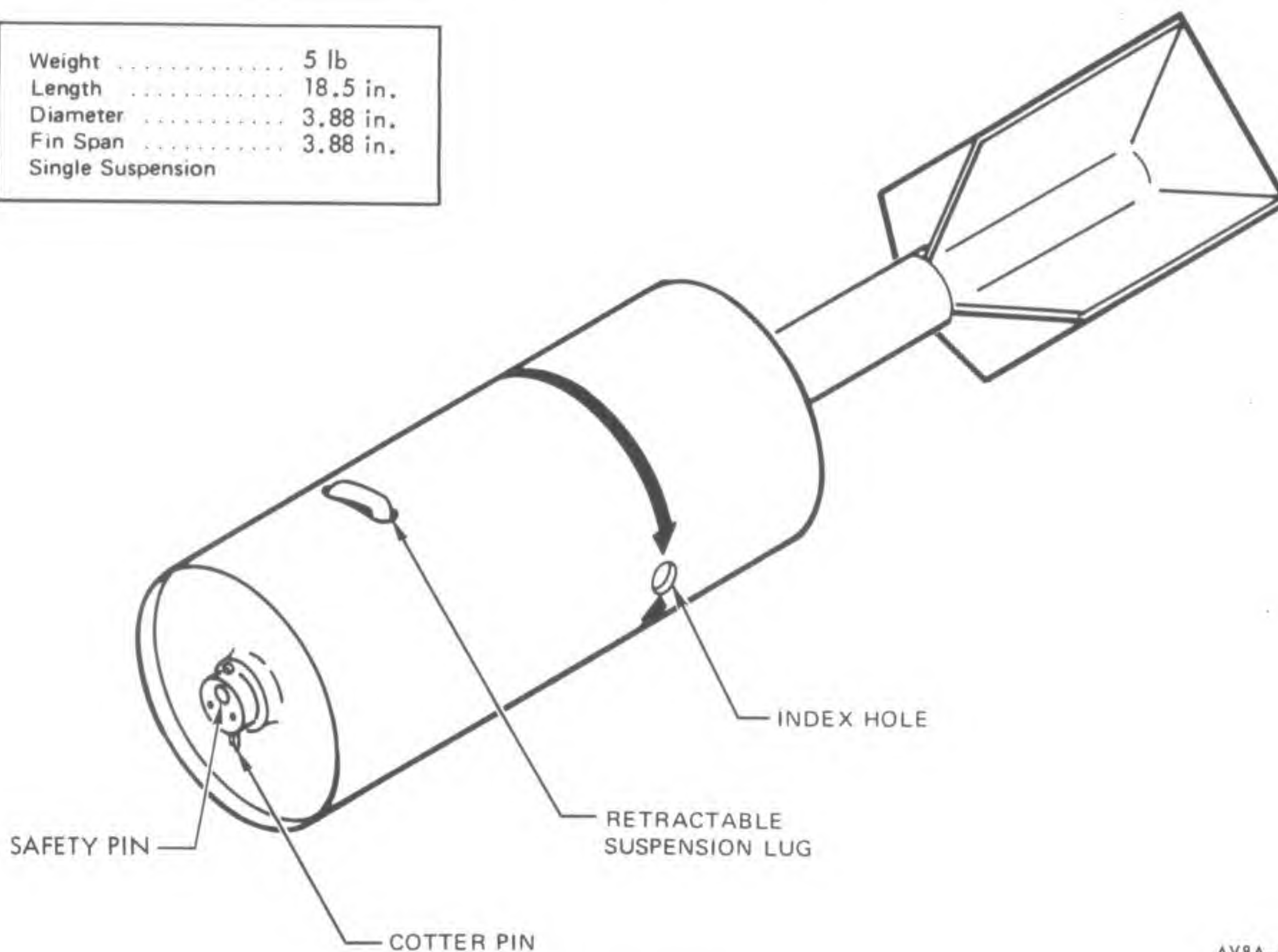
Weight . . . . .	24.5 lb.
Length . . . . .	24.7 in.
Suspension . . . . .	Single lug



AV8A-75-(37)

Figure 2-40. MK 76 Practice Bombs

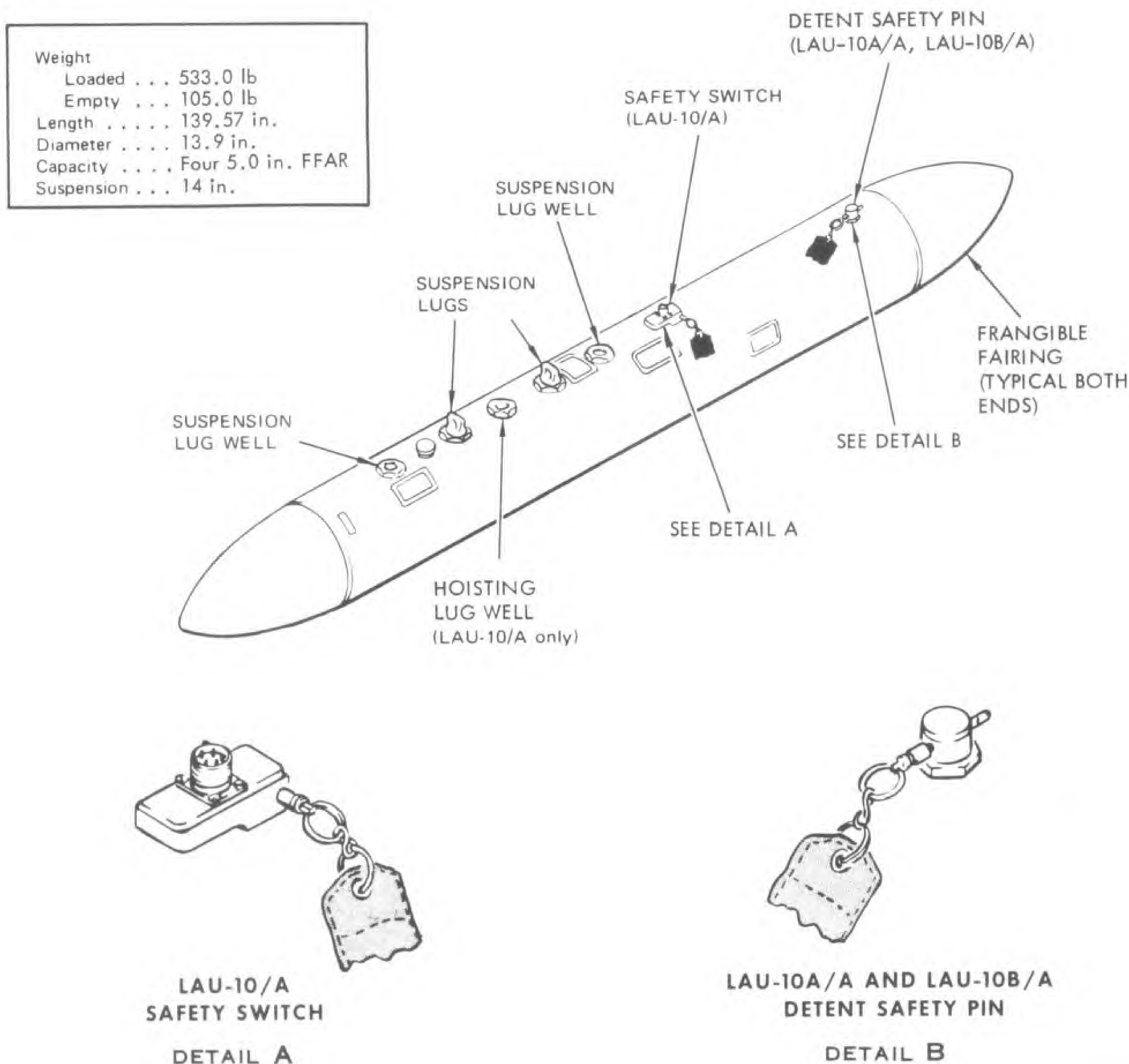
Weight . . . . .	5 lb
Length . . . . .	18.5 in.
Diameter . . . . .	3.88 in.
Fin Span . . . . .	3.88 in.
Single Suspension	



AV8A-75-(39)

Figure 2-41. MK 106 Practice Bomb





AV8A-75-(130)

Figure 2-42. LAU-10 Series Rocket Launchers

2-72. The MK 76 practice bombs (figure 2-40) have a teardrop shaped, cast metal body which is centrally bored. The tail tube assembly fits into the end of the bore. The fins are welded to the tail tube. The firing pin and signal are assembled into the bore of the body and secured in place by a cotter pin. The single suspension lug is screwed into the body of the bomb until it bottoms, and then backed off to align the suspension lug with the rack hook.

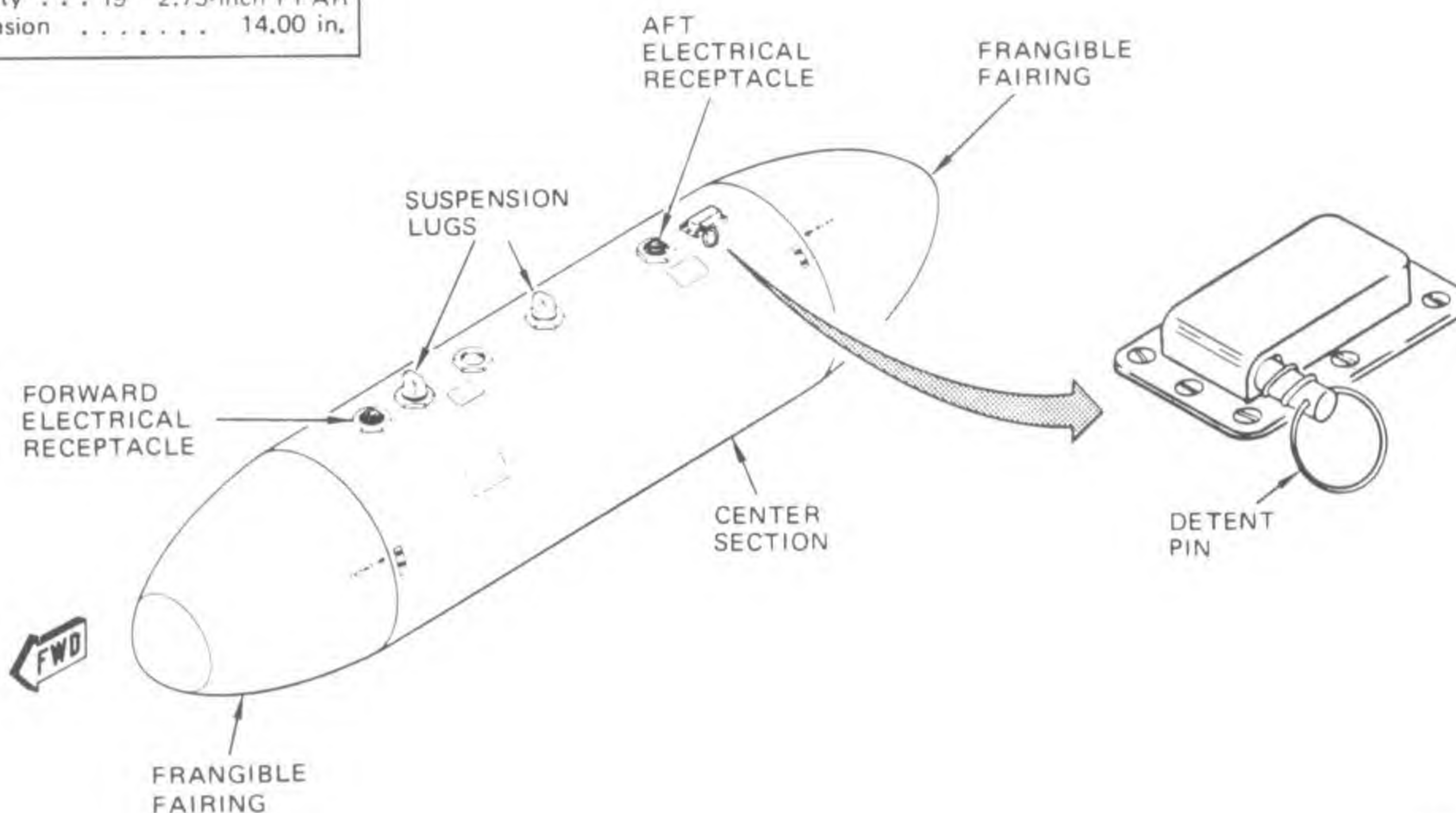
2-73. The MK 106 practice bomb (figure 2-41) is a thin cased cylindrical bomb composed of a body assembly, a practice signal assembly, and an impact fuze assembly. The bomb is designed for retarded laydown delivery and is identified by nomenclature labeled in white on the side of the body. One-fourth inch wide white stripes encircle the body and are

terminated by arrowheads which point to two index holes.

2-74. The LAU-10/A, LAU-10A/A and LAU-10B/A rocket launchers (figure 2-42) carry and launch four 5.0-inch folding fin aircraft (Zuni) rockets. The flight configuration consists of the fully loaded center section and forward and aft frangible fairings. The frangible fairings fit flush with the center section to form an aerodynamic contour. When the rockets fire, the forward fairing is shattered by rocket impact and the aft is shattered by rocket blast. The LAU-10/A launcher is equipped with a safety switch. The LAU-10A/A and LAU-10B/A launcher is equipped with a detent safety pin. The LAU-10B/A rocket launcher is a modified LAU-10A/A launcher. Modification consisted of replacing existing rocket stop with a rocket stop compatible with both MK 16 and MK 71 MOD 0 rocket motors.



Weight	
Loaded . . . . .	473.25 lb
Empty. . . . .	79.00 lb
Length . . . . .	86.50 in.
Diameter . . . . .	15.50 in.
Capacity . . . 19	2.75-inch FFAR
Suspension . . . . .	14.00 in.



AV8A-75-(40)

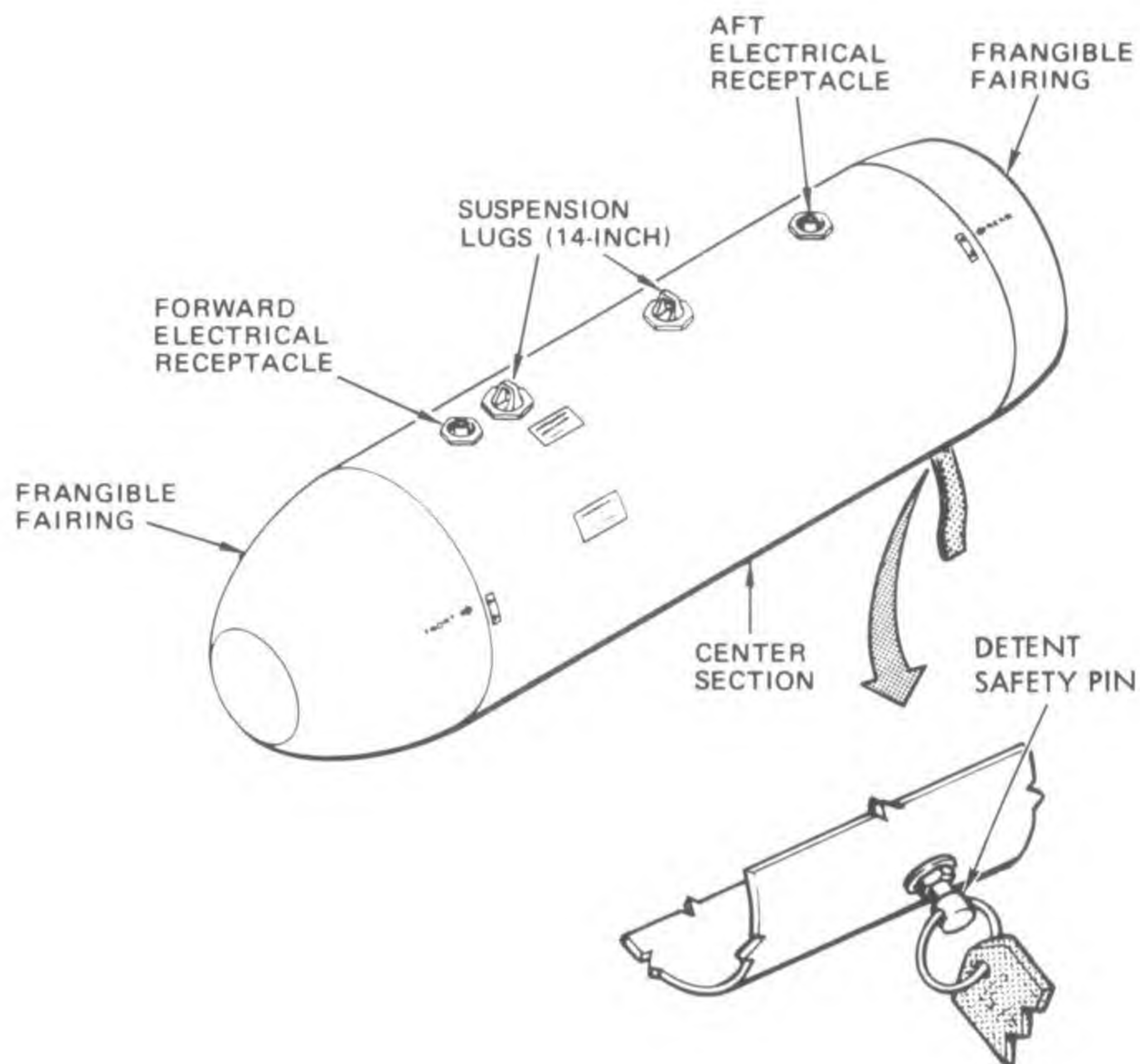
Figure 2-43. LAU-60/A Rocket Launcher

2-75. The LAU-60/A rocket launcher (figure 2-43) is an expendable dual-purpose weapon designed for air-to-air or air-to-surface use. The launcher can carry and launch nineteen 2.75-inch folding fin aircraft rockets. The flight configuration consists of the loaded center section, radiation frequency barriers,

and frangible fairings fitted on the forward and aft end. When the rockets fire, the forward rf barrier and frangible fairing are shattered by rocket impact. The aft rf barrier and a frangible portion of the aft fairing act as a funnel to direct debris away from the aircraft. The SUU-31/A intervalometer must be used.



<b>LAU-61/A</b>	
Weight	
Loaded . . . .	542.0 lb
Empty . . . .	132.5 lb
Length . . . . .	83.1 in.
Diameter . . . .	15.7 in.
Capacity . . . .	Nineteen 2.75 in.
	FFAR
Suspension . . .	14.0 in.
<b>LAU-68/A</b>	
Weight	
Loaded . . . .	217.5 lb
Empty . . . .	67.0 lb
Length . . . . .	70.9 in.
Diameter . . . .	9.8 in.
Capacity . . . .	Seven 2.75 in.
	FFAR
Suspension . . .	14.0 in.
<b>LAU-69/A</b>	
Weight	
Loaded . . . .	506.5 lb
Empty . . . .	98.0 lb
Length . . . . .	83.06 in.
Diameter . . . .	15.7 in.
Capacity . . . .	Nineteen 2.75 in.
	FFAR
Suspension . . .	14.0 in.



AV8A-75-(41)

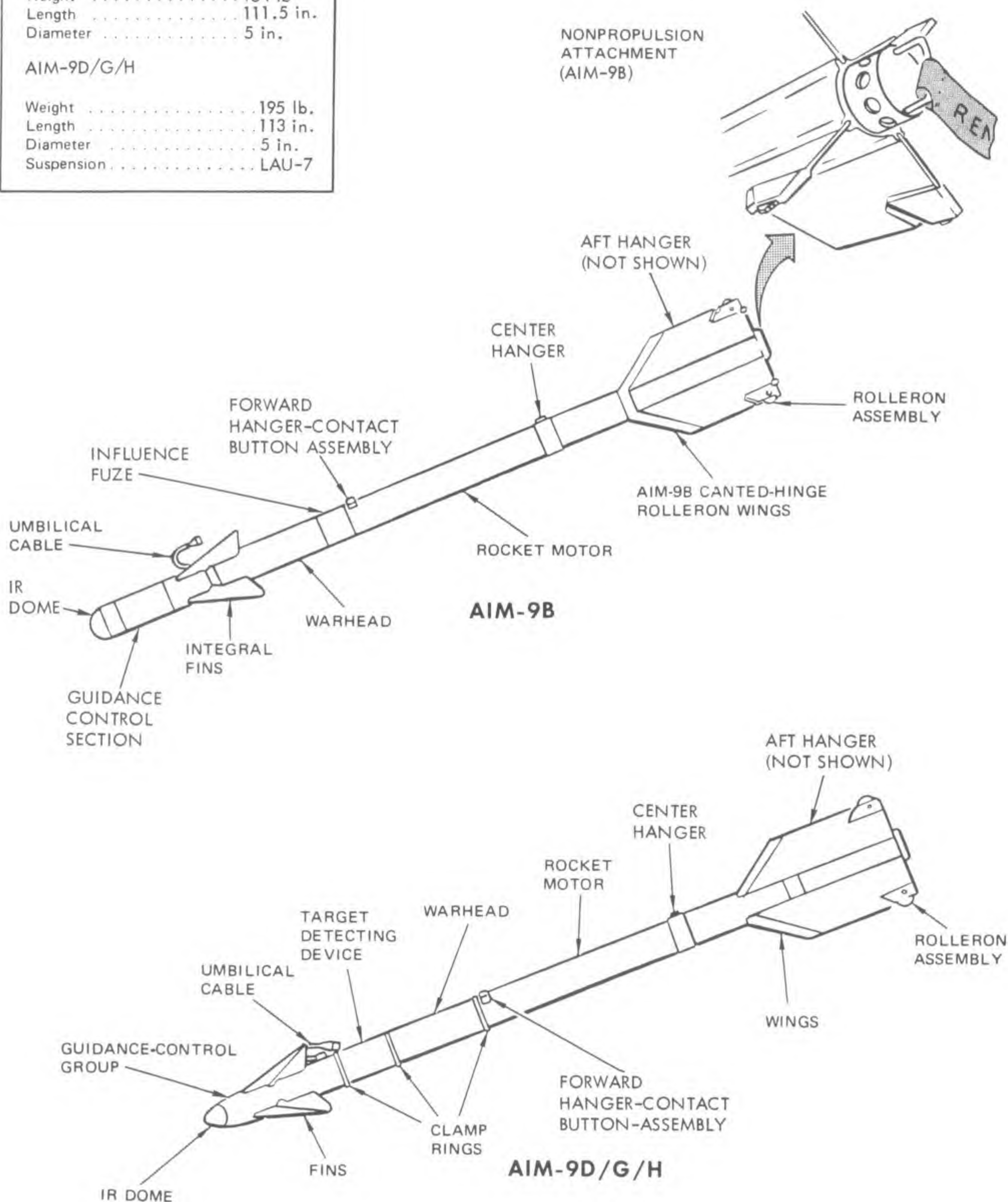
Figure 2-44. LAU-61/A, LAU-68/A and LAU-69/A Rocket Launchers

2-76. The LAU-61/A, LAU-68/A, and LAU-69/A rocket launchers (figure 2-44) are dual-purpose weapons designed for air-to-air or air-to-surface use. The LAU-61/A and LAU-69/A launchers can carry and launch nineteen 2.75-inch folding fin aircraft rockets. The LAU-68/A launcher can carry and launch seven 2.75 inch folding fin aircraft rockets. The LAU-61/A and LAU-68/A launchers are reusable. The LAU-69/A launcher is expendable. The LAU-61/A and LAU-68/A launchers have an aft rf barrier. The LAU-69/A launcher has a forward and aft rf barrier.

2-77. The AIM-9B, -9D, -9G, -9H (Sidewinder) (figure 2-45) are supersonic air-to-air intercept missiles employing infrared target detection, proportional-navigation guidance, and torque-balance control system. The missiles are designed for launching from a LAU-7 series missile launcher. The AIM-9B missile is composed of a guidance control section, influence and contact fuze, warhead, rocket motor, and four fixed wings. The AIM-9D/G/H missile is composed of a guidance-control group, target detecting device with a safety and arming device, warhead, rocket motor, and four fixed wings. The four moveable control canards are in line with the four fixed wings.



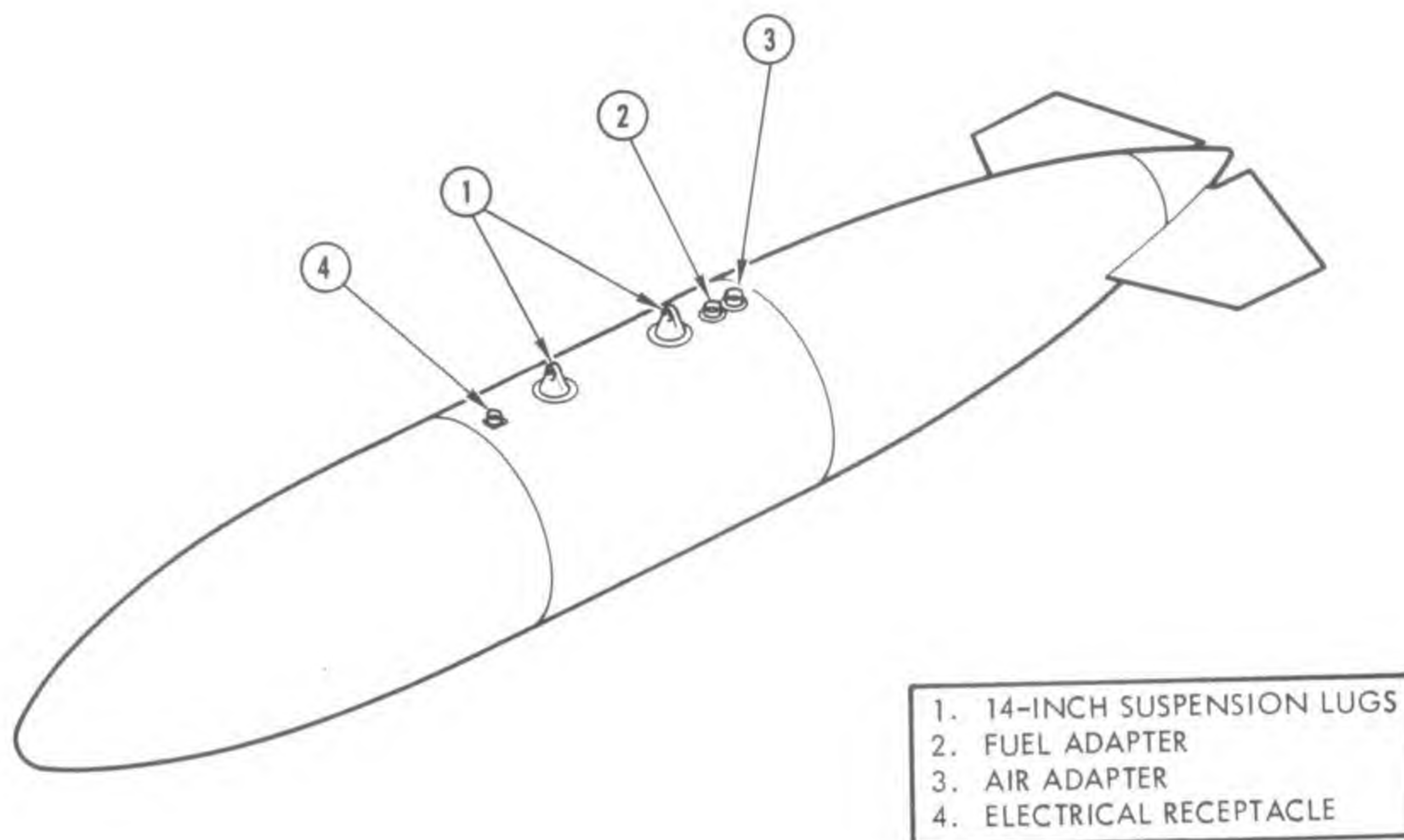
AIM-9B	
Weight .....	164 lb
Length .....	111.5 in.
Diameter .....	5 in.
AIM-9D/G/H	
Weight .....	195 lb.
Length .....	113 in.
Diameter .....	5 in.
Suspension .....	LAU-7



AV8A-75-(38)

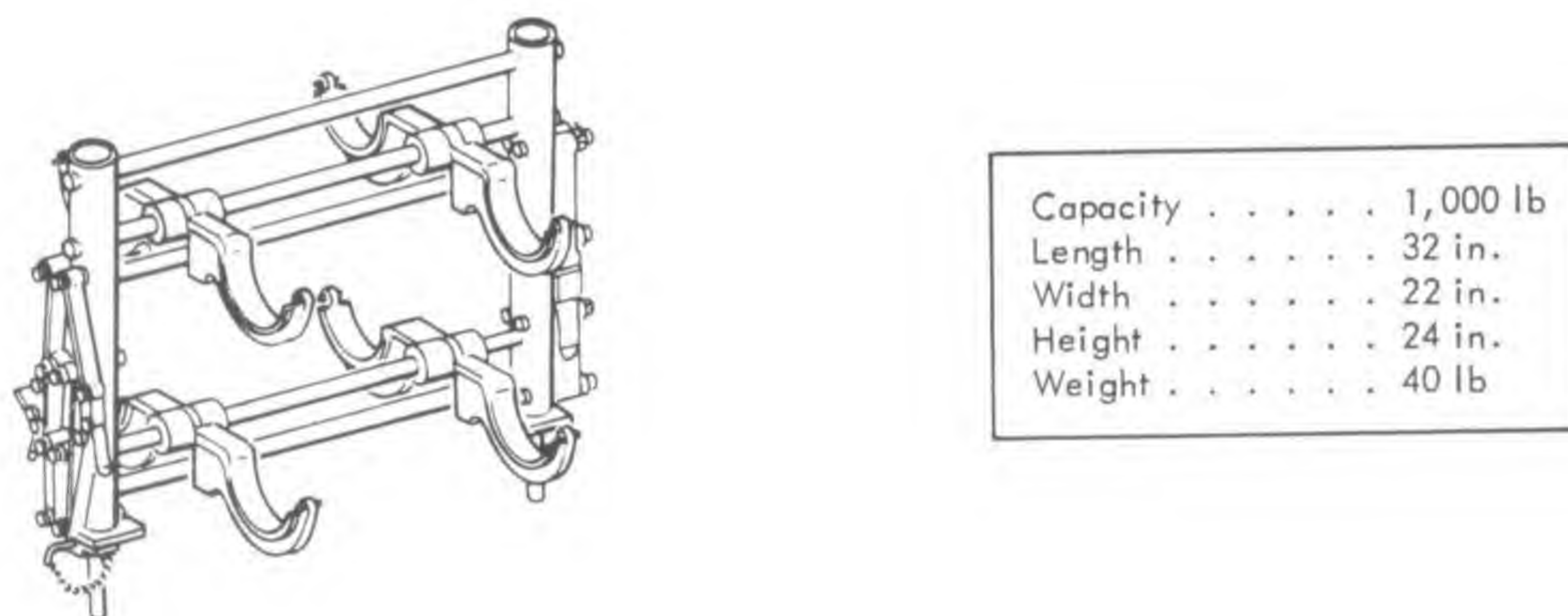
Figure 2-45. AIM-9B, 9D, 9G and 9H Guided Missile





AV8A-75-(172)

Figure 2-46. Fuel Tank, 120 Gallon



AV8A-75-(42)

Figure 2-47. Aero 8C Bomb Skid Adapter

2-78. The 120 gallon fuel tank (figure 2-46) is an expendable fuel container used to supplement the aircraft internal fuel supply. Suspension lugs attached to the fuel tank and fuel/air connector provide a means of connection to the aircraft fuel system. Connection to the air pressure adapter forces fuel from the tank into the aircraft internal fuel supply.

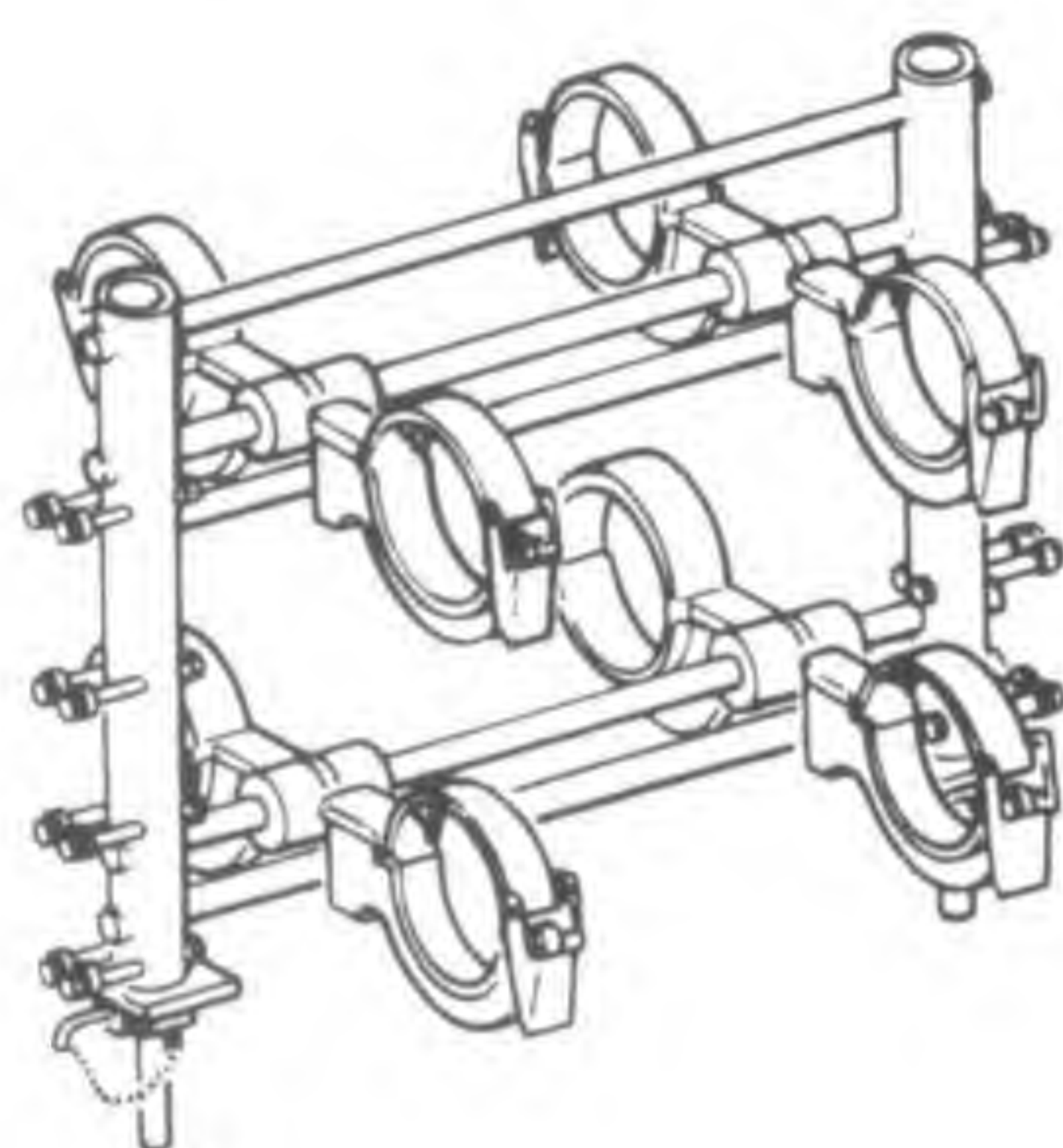
#### 2-79. HANDLING EQUIPMENT.

2-80. General purpose and special purpose handling equipment which may be used for handling various

weapons and stores carried by the AV-8A aircraft are as follows:

2-81. The Aero 8C bomb skid adapter (figure 2-47) is used with the Aero 12B bomb skid and Aero 30A adapter kit to carry four Sidewinder missiles or rockets of 2 to 5 inches in diameter.

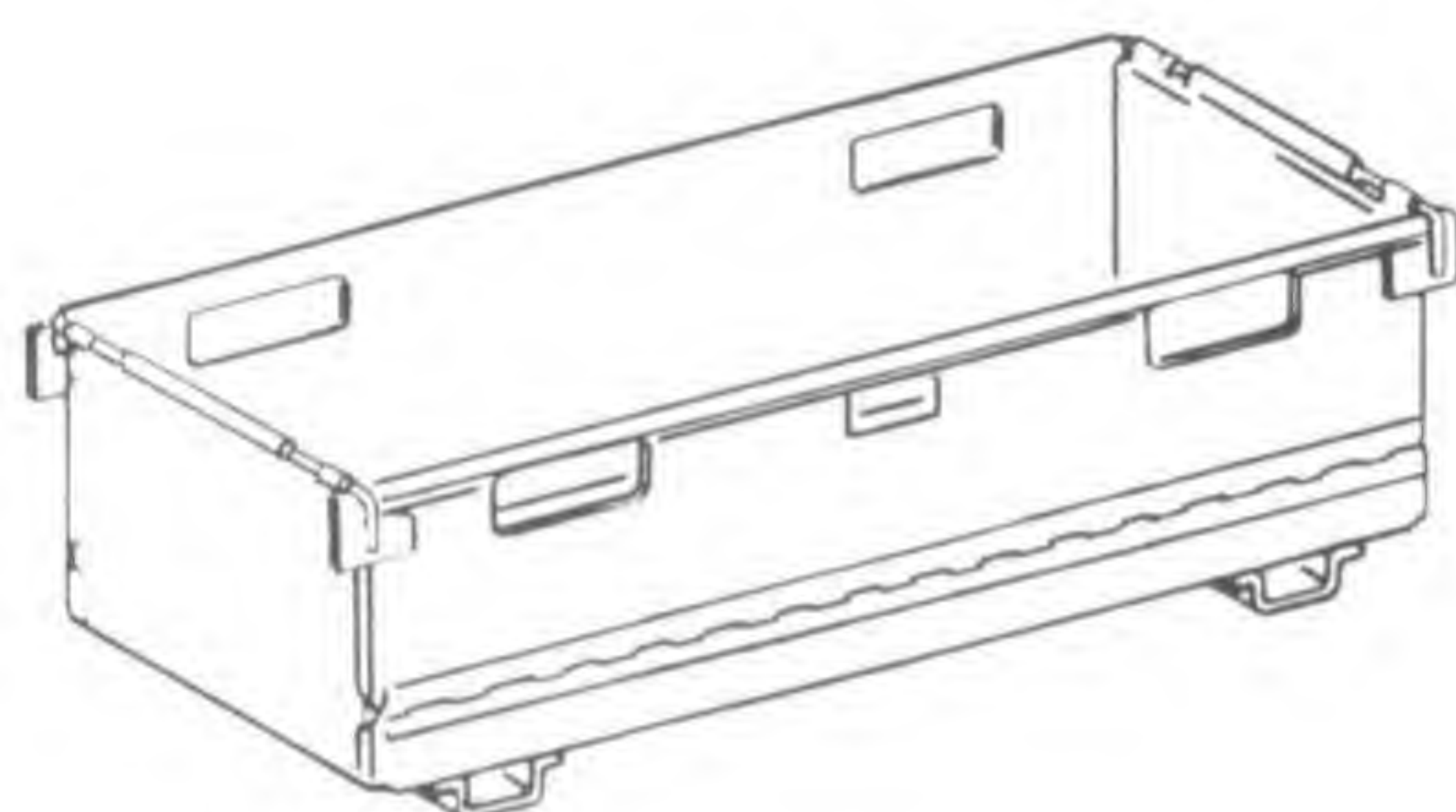




Capacity . . . . .	1,000 lb
Length . . . . .	32 in.
Width . . . . .	22 in.
Height . . . . .	27 in.
Weight . . . . .	40 lb.

AV8A-75-(43)

Figure 2-48. Aero 8C-1 Skid Adapter



Capacity . . . . .	1,000 lb
Length . . . . .	43 in.
Width . . . . .	18.75 in.
Height . . . . .	12.69 in.
Weight . . . . .	24 lb

AV8A-75-(45)

Figure 2-49. Aero 9 Bomb Skid Adapter



Capacity . . . . .	1,250 lb
Length . . . . .	28 in.
Width . . . . .	26 in.
Height . . . . .	21.86 in.
Weight . . . . .	170 lb

AV8A-75-(44)

Figure 2-50. Aero 12 Bomb Skid

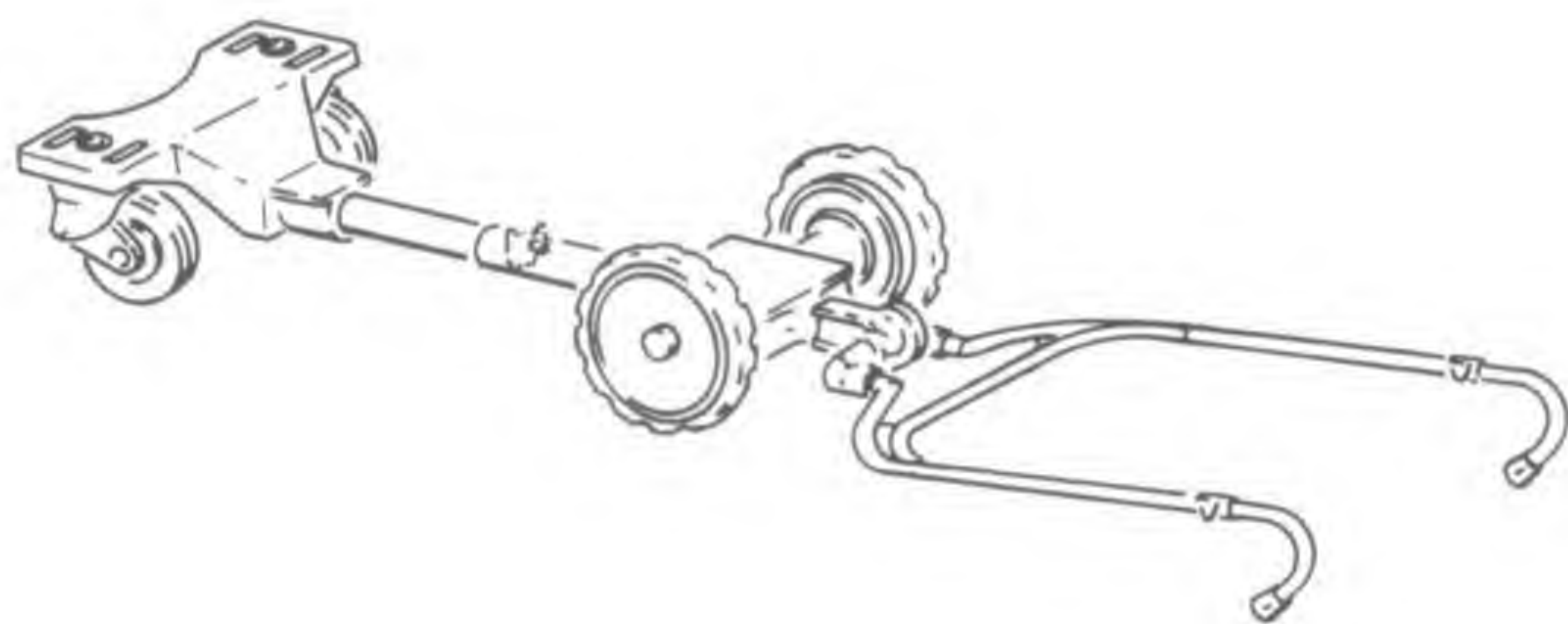
2-82. The Aero 8C-1 skid adapter (figure 2-48) is used with the Aero 12B/C bomb skid and Aero 30A adapter kit to carry four Sidewinder missile or rockets of 2 to 5 inches in diameter.

2-83. The Aero 9 bomb skid adapter (figure 2-49) consists of an aluminum frame of boxlike, collapsible construction. It is used with bomb skid Aero 12B and 12C to handle and transport miscellaneous ammuni-

tion items such as rocket motors, rocket heads, loose and belted ammunition, and packaged pyrotechnics.

2-84. The Aero 12 bomb skid (figure 2-50) is a wheelbarrow-type skid with a cradle-type frame mounted on two rubber-tired wheels and equipped with two supporting legs. The skid is equipped with adjustable chocks on the bed frame to locate the load in its proper position.

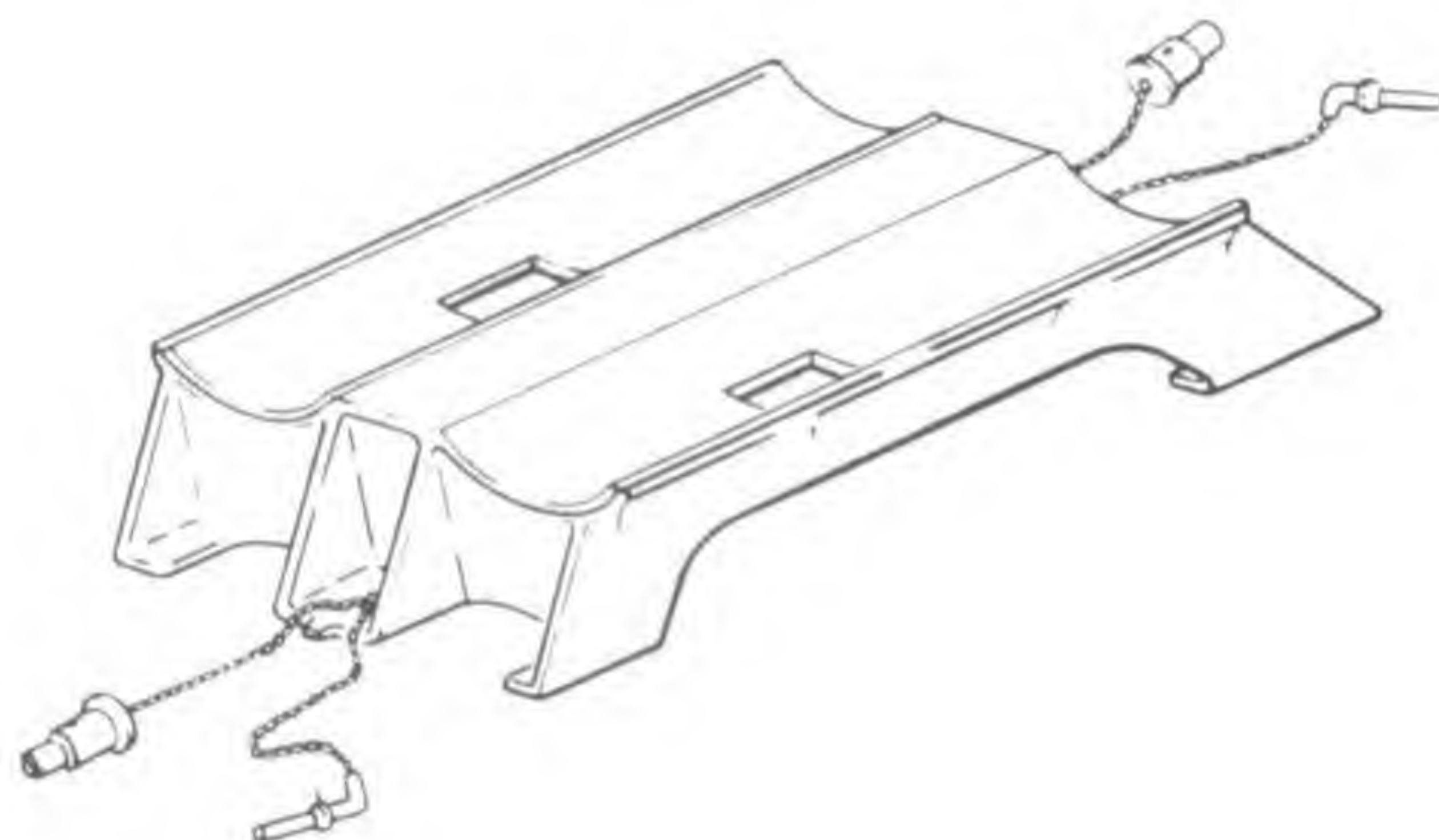




Capacity . . . . .	2000 lb
Length . . . . .	102 in.
Width . . . . .	34 in.
Height . . . . .	45 in.
Weight . . . . .	200 lb

AV8A-75-(46)

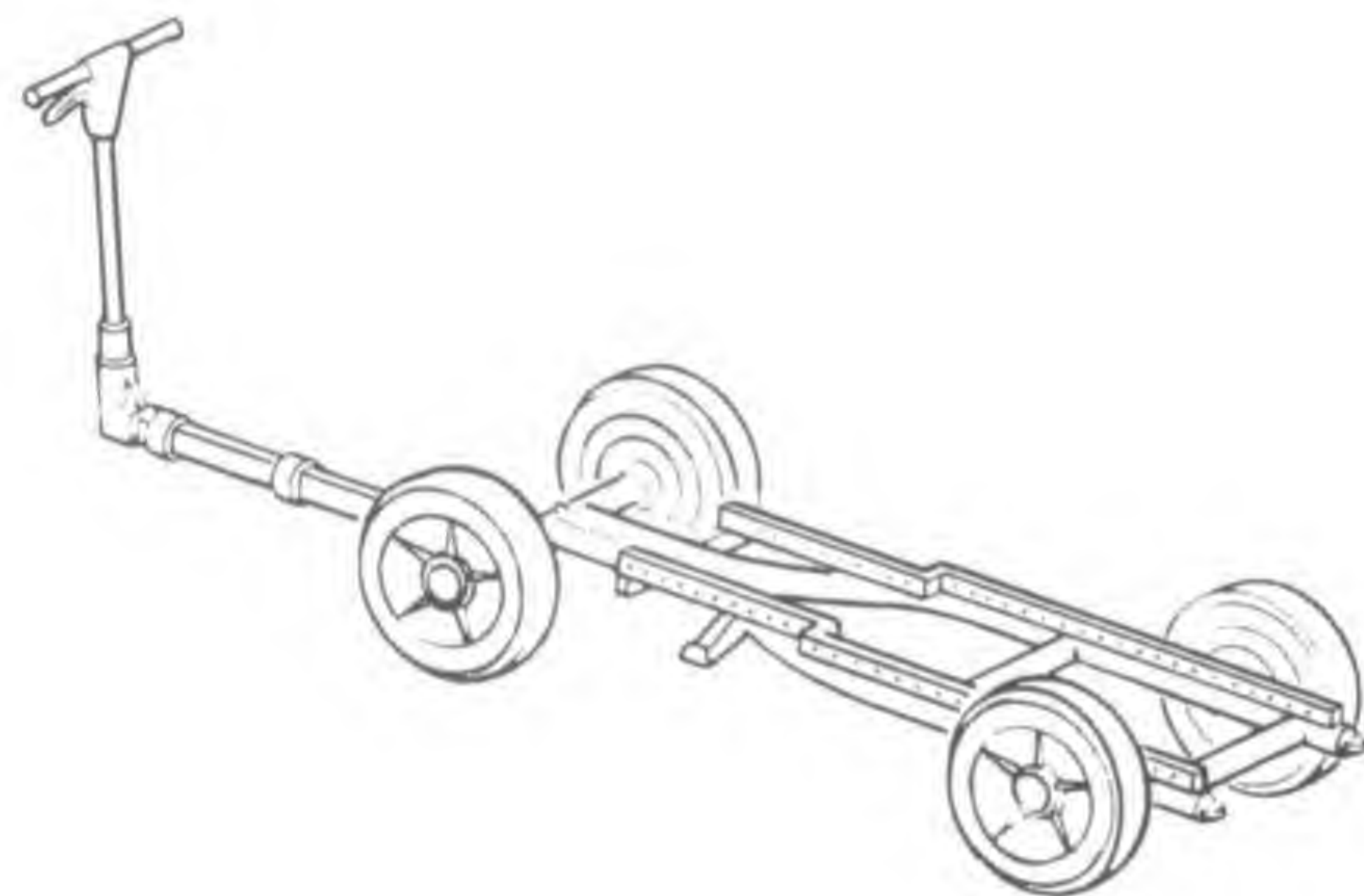
Figure 2-51. Aero 16B Missile Skid



Capacity . . . . .	750 lb
Length . . . . .	29 in.
Width . . . . .	18.81 in.
Height . . . . .	5.63 in.
Weight . . . . .	31 lb

AV8A-75-(47)

Figure 2-52. Aero 18A Bomb Skid Adapter



Capacity . . . . .	4,000 lb
Length . . . . .	107.25 in.
Width . . . . .	26 in.
Height . . . . .	18.63 in.
Weight . . . . .	225 lb

AV8A-75-(48)

Figure 2-53. Aero 21A Weapon Skid

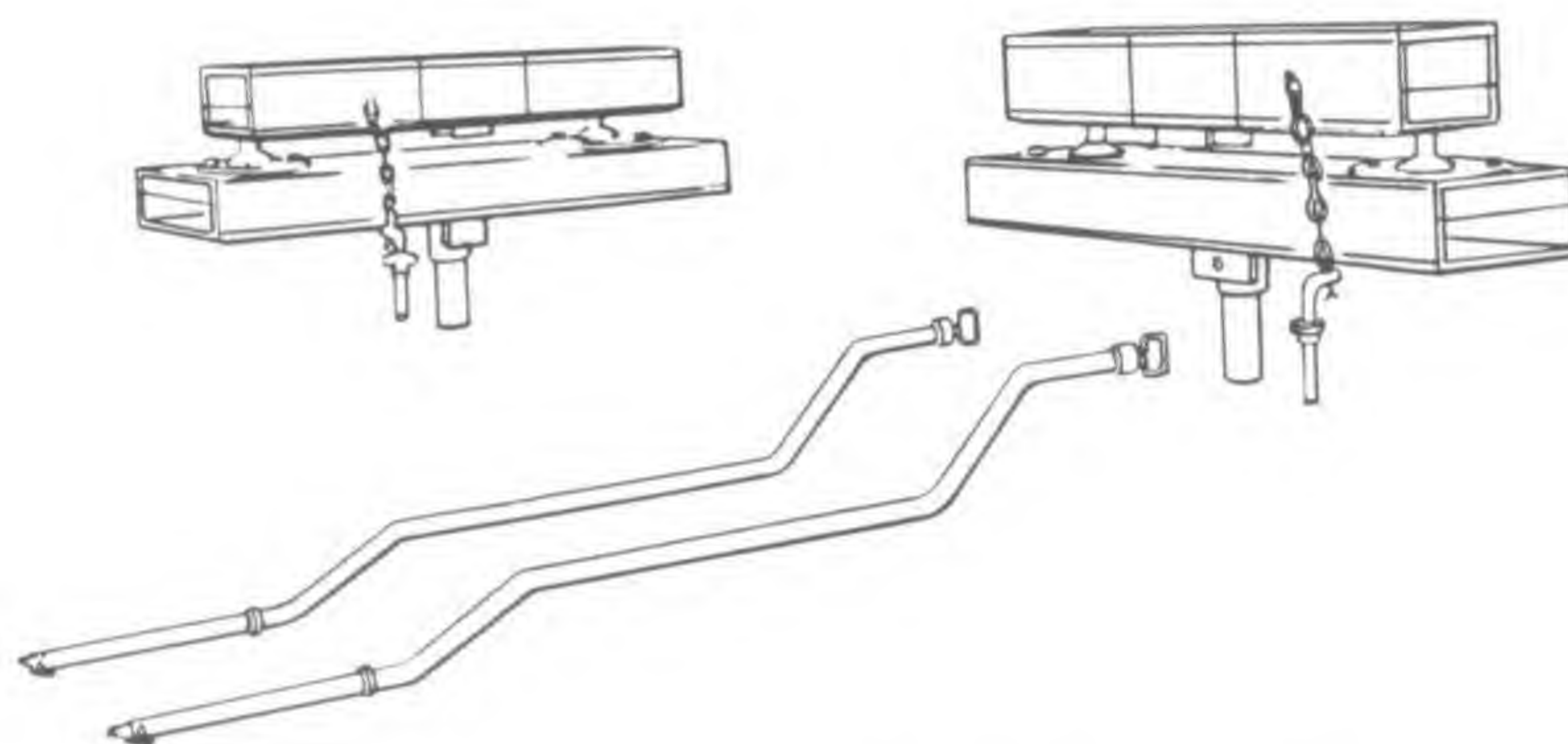
2-85. The Aero 16B missile skid (figure 2-51) is a four wheeled vehicle. The frame consists of telescoping tubes bolted to aluminum alloy castings at the front and rear. The casters are free swiveling but can be locked in different positions by the caster lock. The telescoping drawbar is attached to the front frame. The skid brakes are controlled by the position of the drawbar.

2-86. The Aero 18A bomb skid adapter (figure 2-52) is a cast aluminum alloy cradle with two troughs. The adapter is secured to the bomb skid by two se-

curing pins which are held in place by quick-disconnect locking pins. The holddown straps of the bomb skid are used to secure the weapon load. The adapter is used with the Aero 12 bomb skid.

2-87. The Aero 21A weapon skid (figure 2-53) is a welded tubular frame with four rubber-tired wheels and a telescoping drawbar. A box section of drilled steel bars, welded to the main frame, provides the mounting holes for attaching the two weapon adapters provided. Four spring-loaded adapter locks secure each adapter to the frame.

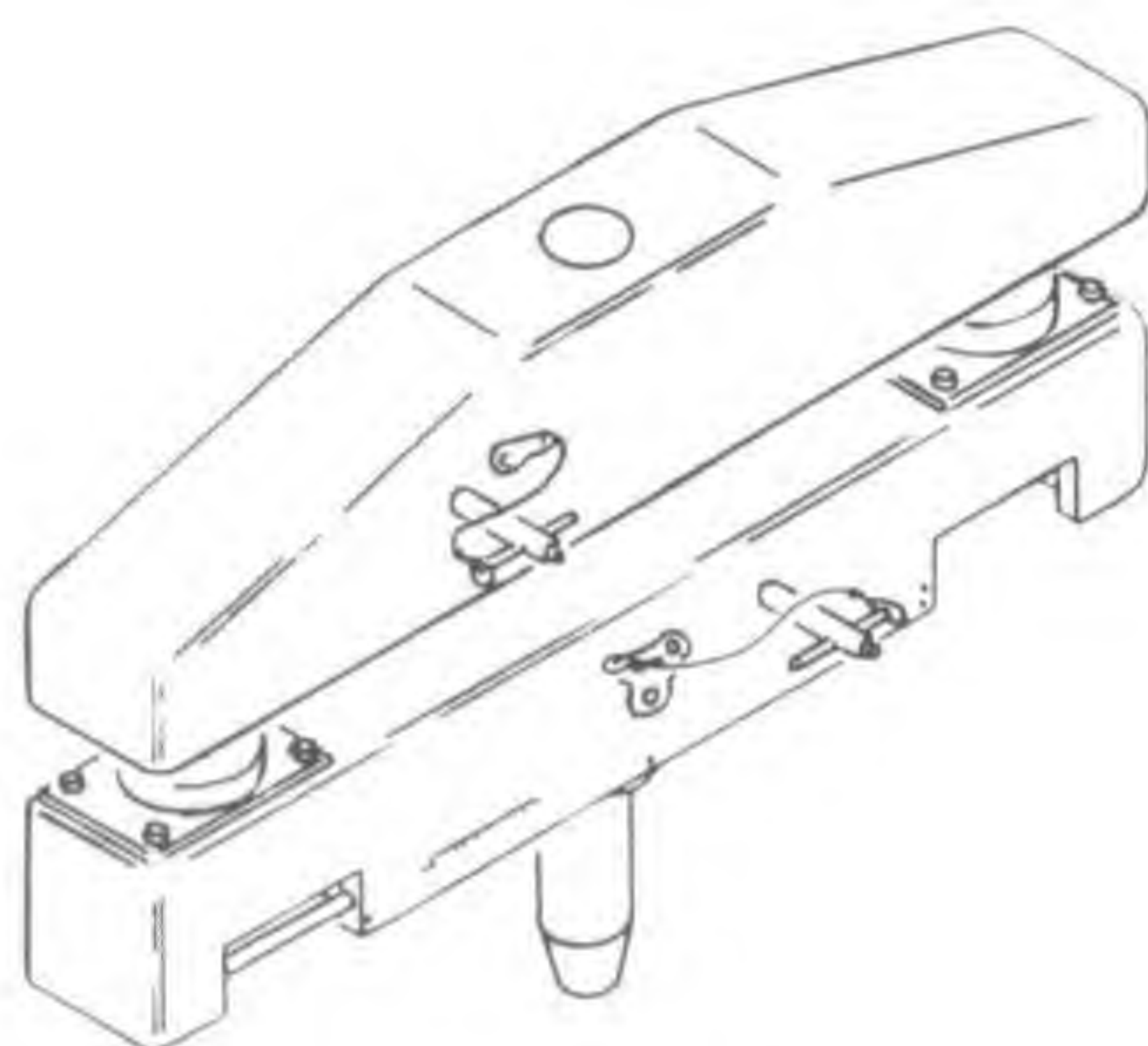




Length (Vibrators)	. 17.38 in.
Width	. . . . . 3.31 in.
Height	. . . . . 11 in.
Length (Handles)	. . 92.44 in.

AV8A-75-(50)

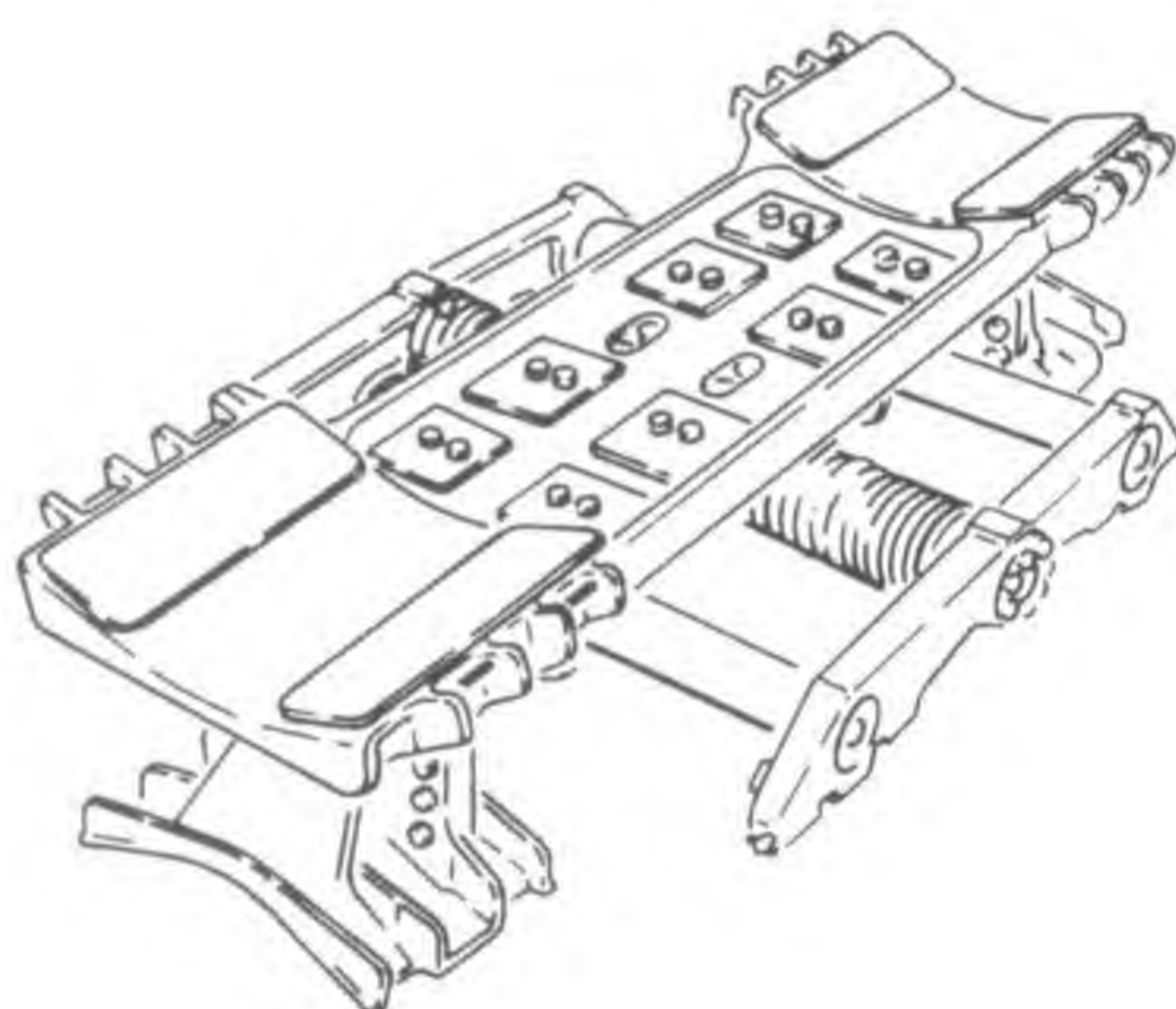
Figure 2-54. Aero 30A Adapter Kit



Capacity	. . . . . 1,000 lb
Weight	. . . . . 31 lb

AV8A-75-(49)

Figure 2-55. Aero 30A-2 Sidewinder Adapter



Capacity	. . . . . 4,000 lb
Length	. . . . . 52 in.
Width	. . . . . 30.5 in.
Height	. . . . . 18.5 in.
Weight	. . . . . 275 lb

AV8A-75-(75)

Figure 2-56. Aero 36A Truck Adapter

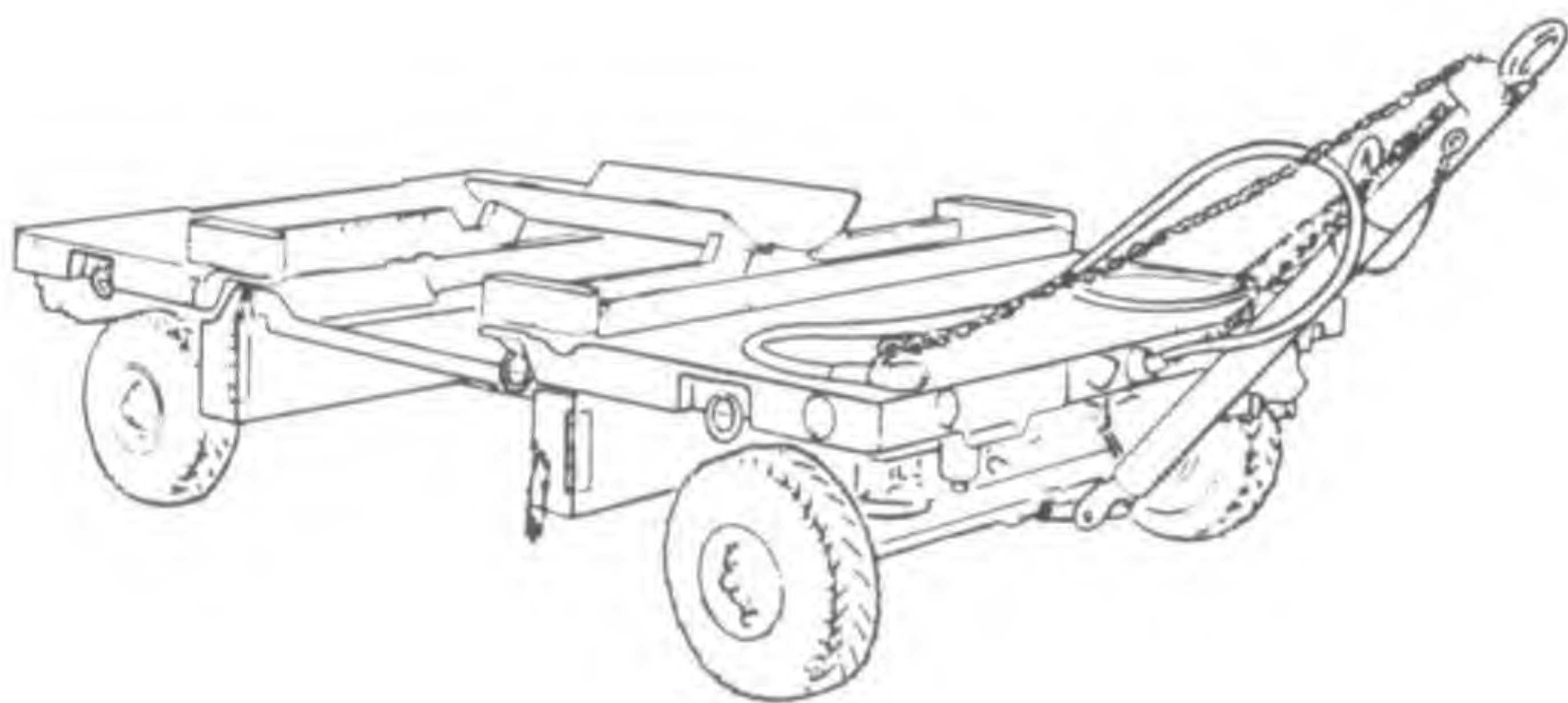
2-88. The Aero 30A adapter kit (figure 2-54) consists of two vibration isolators and two long handles. It is used with the Aero 8C adapter on the Aero 12B bomb skid to carry four assembled Sidewinder missiles. The vibration isolators, mounted between the skid and Aero 8C reduce the amount of vibration that will reach the missiles. The handles replace the skid handles, which are too short for the handling of Sidewinder missiles.

2-89. The Aero 30A-2 Sidewinder adapter (figure 2-55) consists of a lower and upper support connected by two vibration-absorbing mounts. The lower sup-

port has two slide pins and a shaft for mounting the adapter on various skids and adapters. The Aero 30A-2 performs the same function as the vibration isolators furnished with the Aero 30A adapter kit.

2-90. The Aero 36A truck adapter (figure 2-56) is equipped with two cradles, one for 14- and 22-inch diameter stores, and one for 30-inch diameter stores. Horizontal movement of the cradle is 8 1/4 inches to left or right of center position. The Aero 36A is used on the Aero 33 bomb truck to increase hoisting height and to enable stores to be mounted off center into the aircraft without moving the Aero 33.

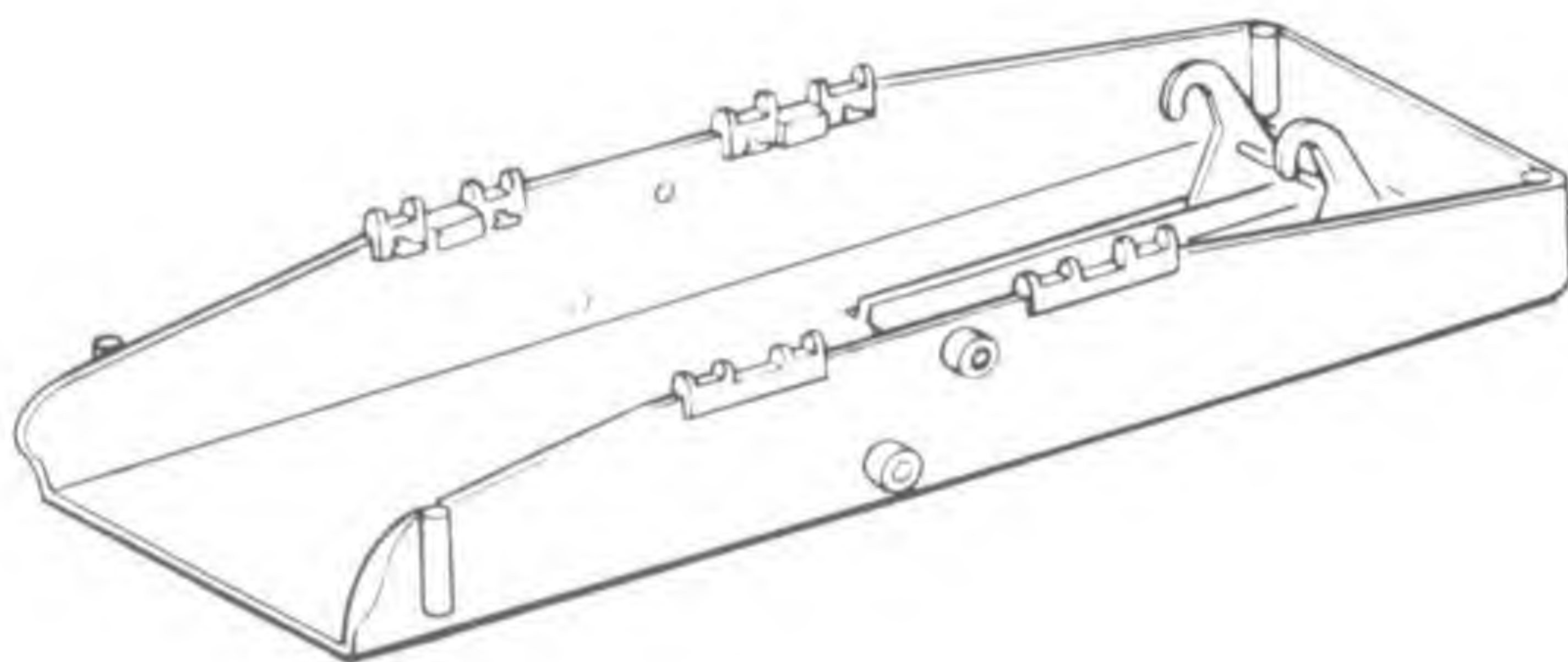




Capacity . . . . .	8,000 lb
Length . . . . .	126 in.
Width . . . . .	83.75 in.
Weight . . . . .	2,200 lb

AV8A-75-(74)

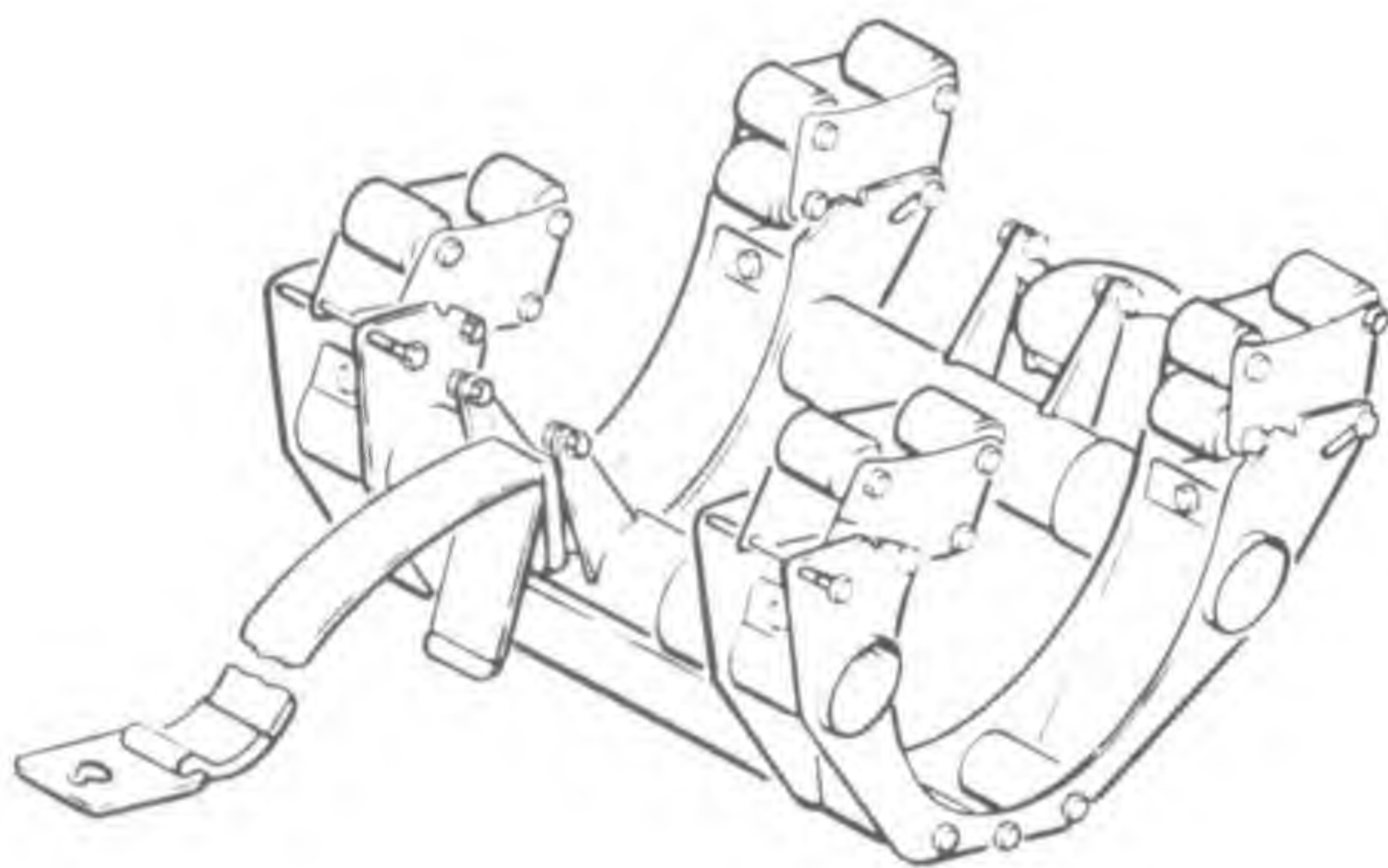
Figure 2-57. Aero 51A Weapon Trailer



Capacity . . . . .	4,000 lb
Length . . . . .	77.13 in.
Width . . . . .	27.75 in.
Height . . . . .	8.75 in.

AV8A-75-(73)

Figure 2-58. Aero 62A Truck Adapter



Capacity . . . . .	3,000 lb
Length . . . . .	32 in.
Width . . . . .	24 in.
Height . . . . .	15 in.
Weight . . . . .	62 lb

AV8A-75-(72)

Figure 2-59. Aero 63A Skid Adapter

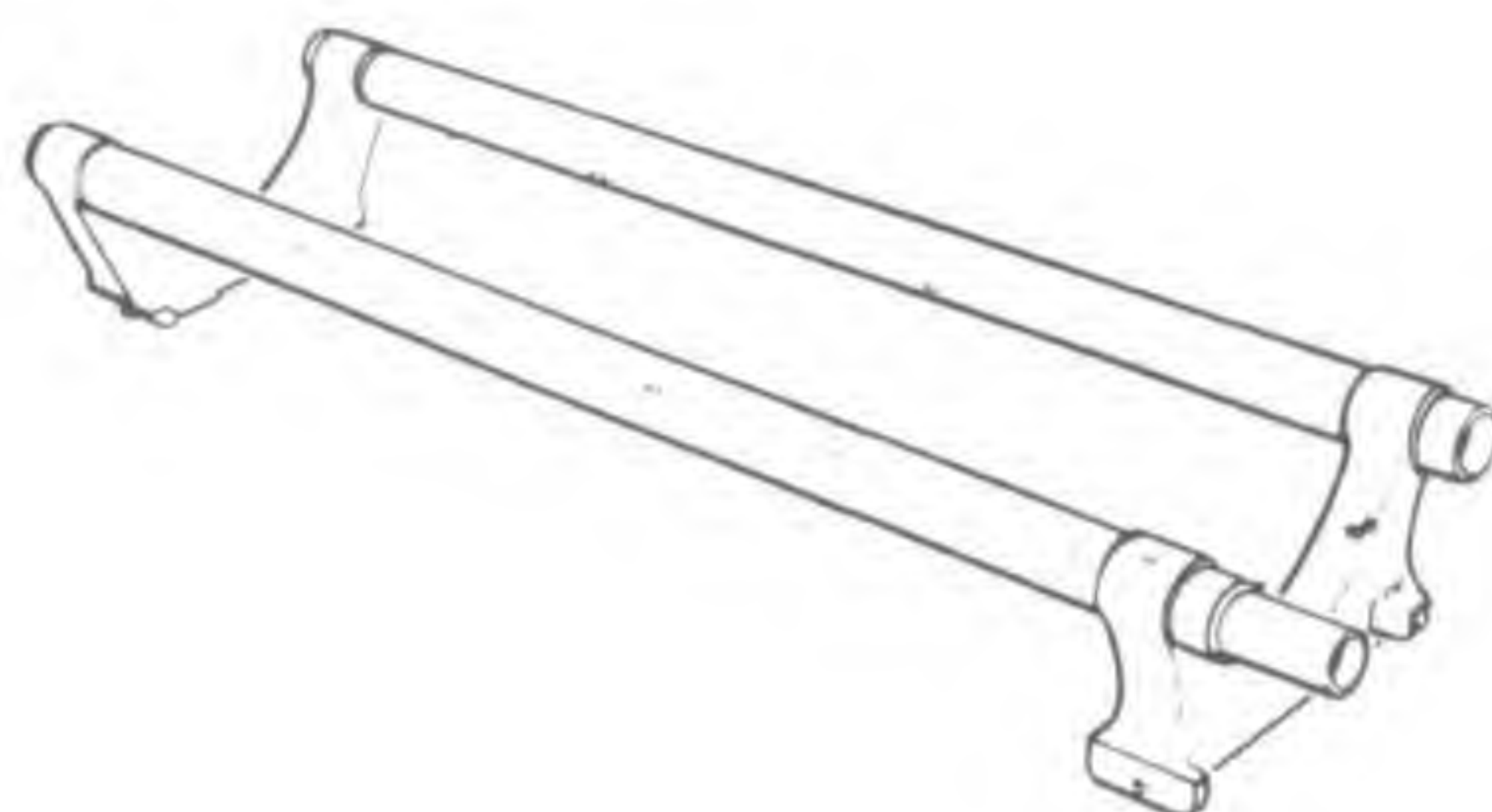
2-91. The Aero 51A weapon trailer (figure 2-57) is a transport vehicle consisting of an automotive-type chassis and a flat-deck body. The chassis has two axles and four single wheels equipped with pneumatic tires. The center section of the nonskid flat deck is hinged and can be opened to provide a hatchway across the full width of the vehicle. Hinged deck panels have double rails with holes at intervals to provide a mounting base for cradles and adapters.

2-92. The Aero 62A truck adapter (figure 2-58) is a rectangular loading tray with one end open so that a skid can be pushed onto the bottom plate. A pair of hooks is mounted in two brackets on the bottom of the

tray to hold the skid in place during transportation. The hooks are secured by two detent pins. The adapter is attached to the lifting arms of an Aero 33 truck by means of two mounting pads on each side of the tray.

2-93. The Aero 63A skid adapter (figure 2-59) consists of a weldment which mounts sixteen weapon rollers. The weldment has two cradle-shaped frames connected by a flat base and two tubes. The lower rollers are fixed and can accomodate a weapon up to 10 3/4 inches in diameter. The upper rollers are adjustable for weapons from 9 to 10 3/4 inches in diameter.

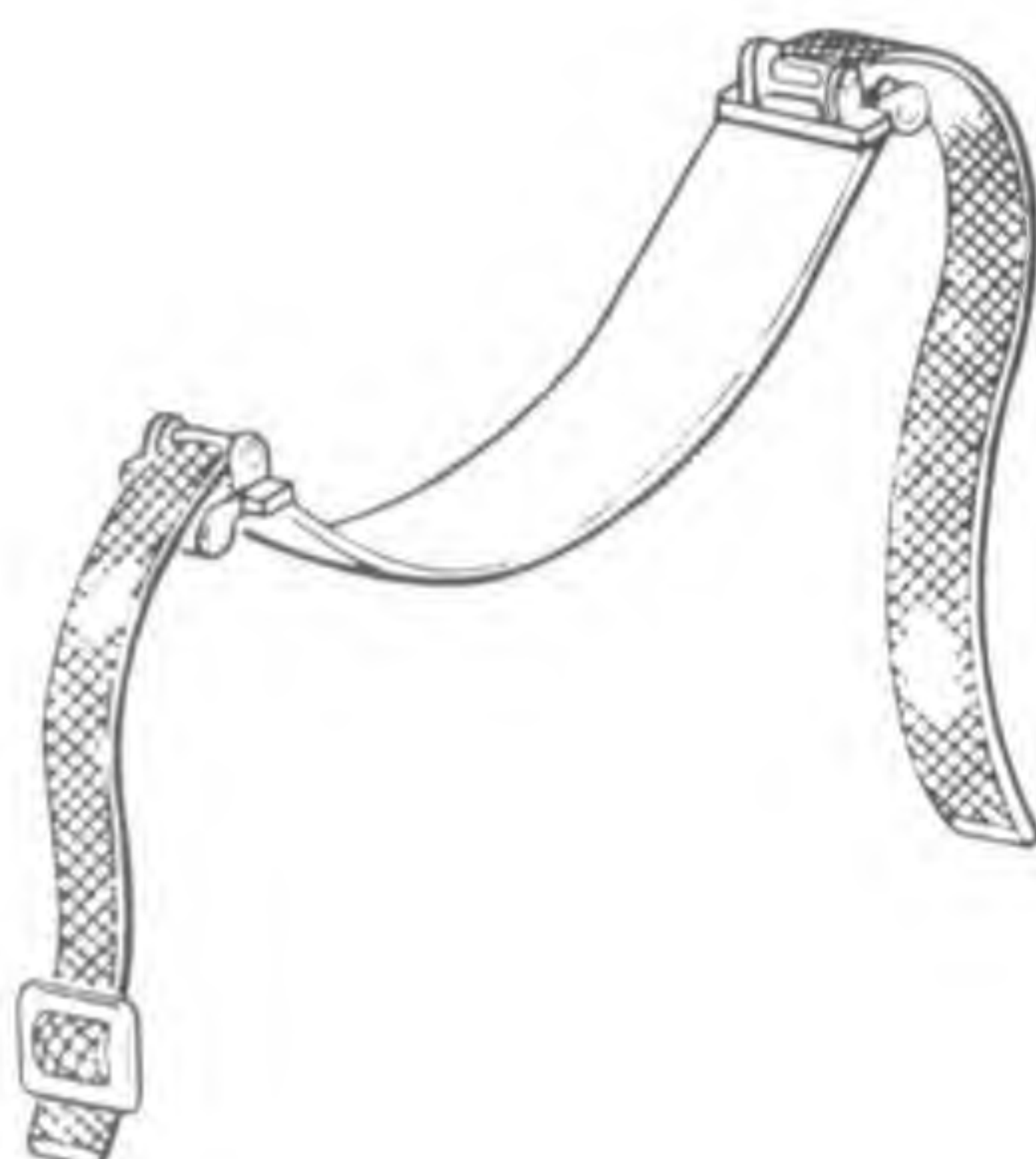




Capacity	3,000 lb
Length	61.5 in
Width	18.38
Height	9 in.

AV8A-75-(71)

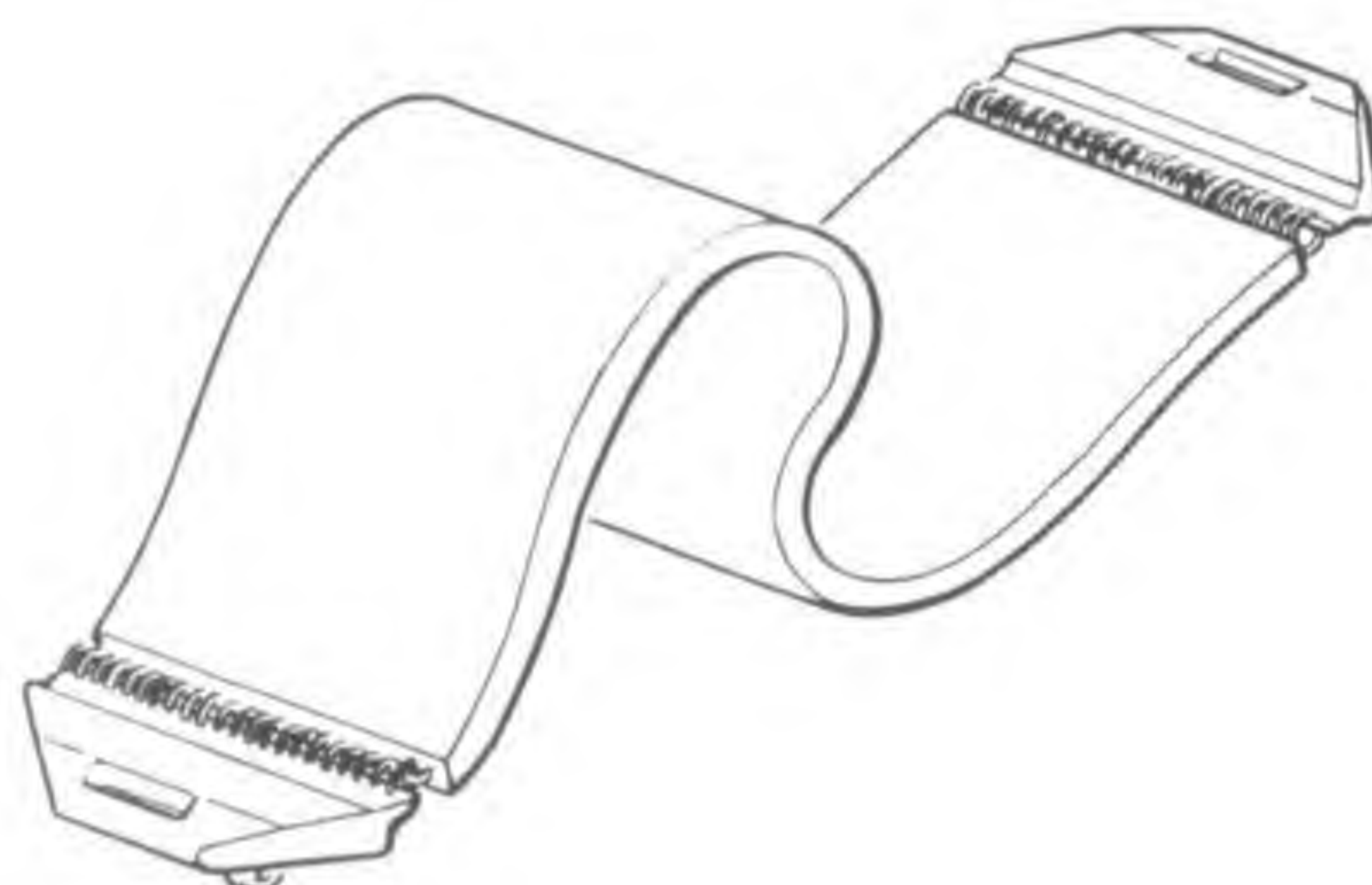
Figure 2-60. Aero 63A-1 Skid Adapter



Capacity	1,000 lb
Length	23.31 in.
Width	6.25 in.
Weight	32 lb

AV8A-75-(70)

Figure 2-61. Aero 64A Soft Belt Adapter



Capacity	1000 lb
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AV8A-75-(69)

Figure 2-62. Aero 64B Soft Belt Adapter

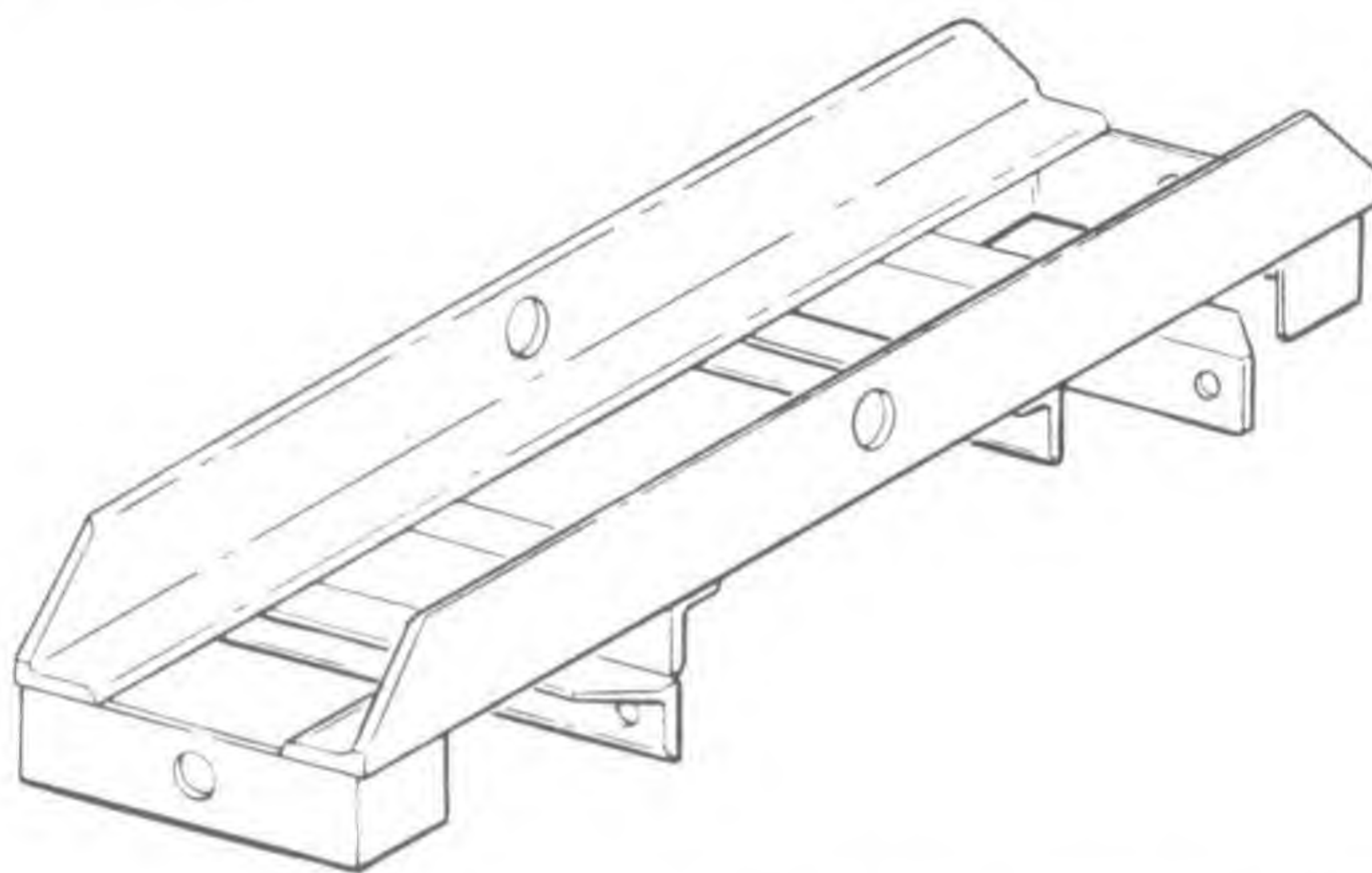
2-94. The Aero 63A-1 skid adapter (figure 2-60) consists of two support assemblies and two support frames. It is used with the Aero 21A weapon skid with either one or two Aero 63A skid adapters to transport three or, by using two Aero 36A-1 adapters, six MK 81 or MK 82 bombs. The Aero 63A adapters mount on the support rails of the Aero 63A-1.

2-95. The Aero 64A soft belt adapter (figure 2-61) consists of two identical neoprene covered, woven, steel wire slings, which are used to transport all 5- to 20-inch diameter soft shell weapons on the Aero

21A skid. Each sling is equipped with attaching devices for securing to the Aero 58A (lower) adapters on the skid and provides for repositioning of existing tiedown straps. Multiple loads may be carried providing they have a diameter of 8 inches or less and are hard-shell construction.

2-96. The Aero 64B soft belt adapter (figure 2-62) consists of two neoprene covered wire slings. The adapter is flexible and can support loads from 8 to 30 inches in diameter. The adapter has slots on each end for attaching to an Aero 12 bomb skid.

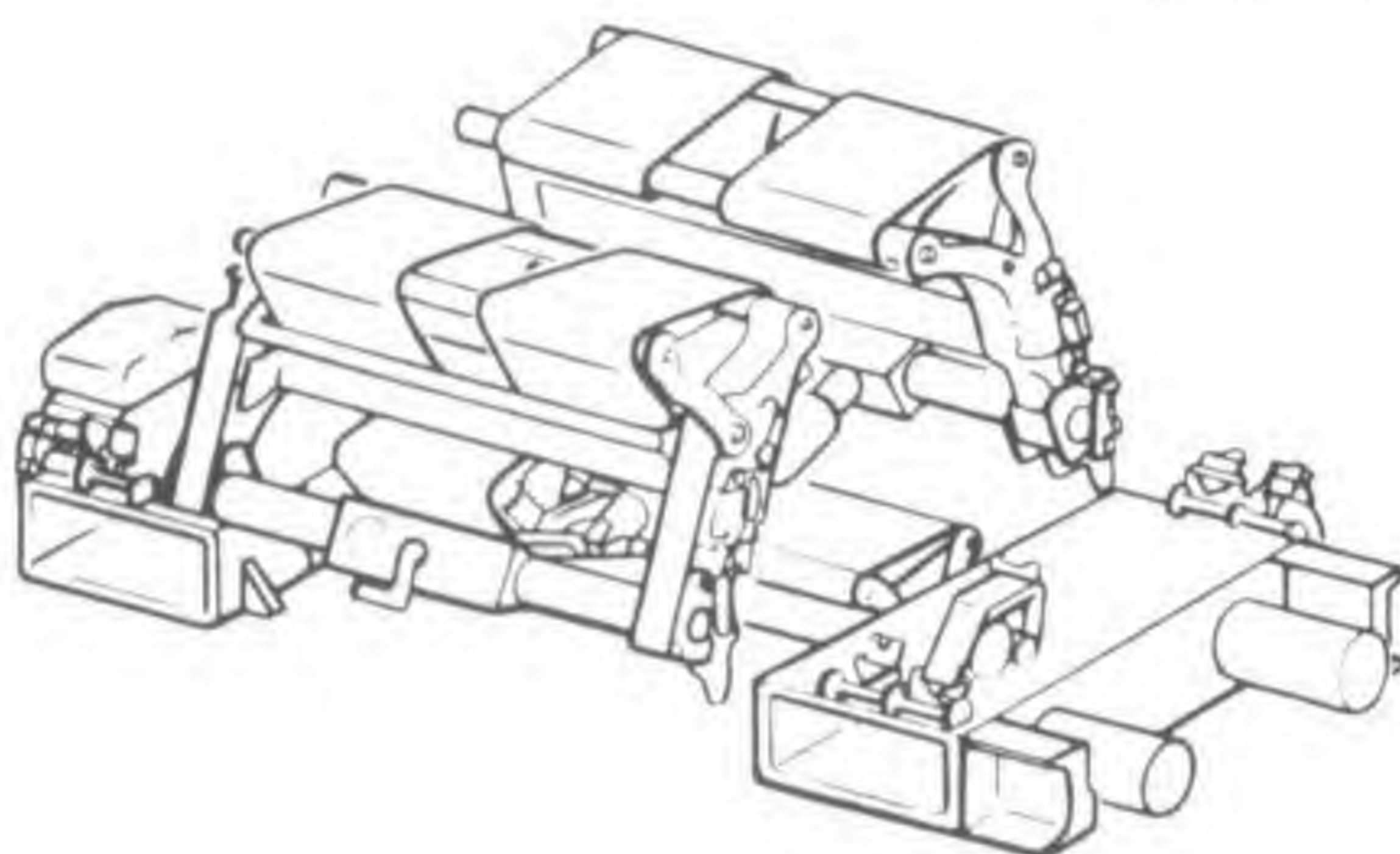




Capacity ..... 4,000 lb

AVBA-75-(68)

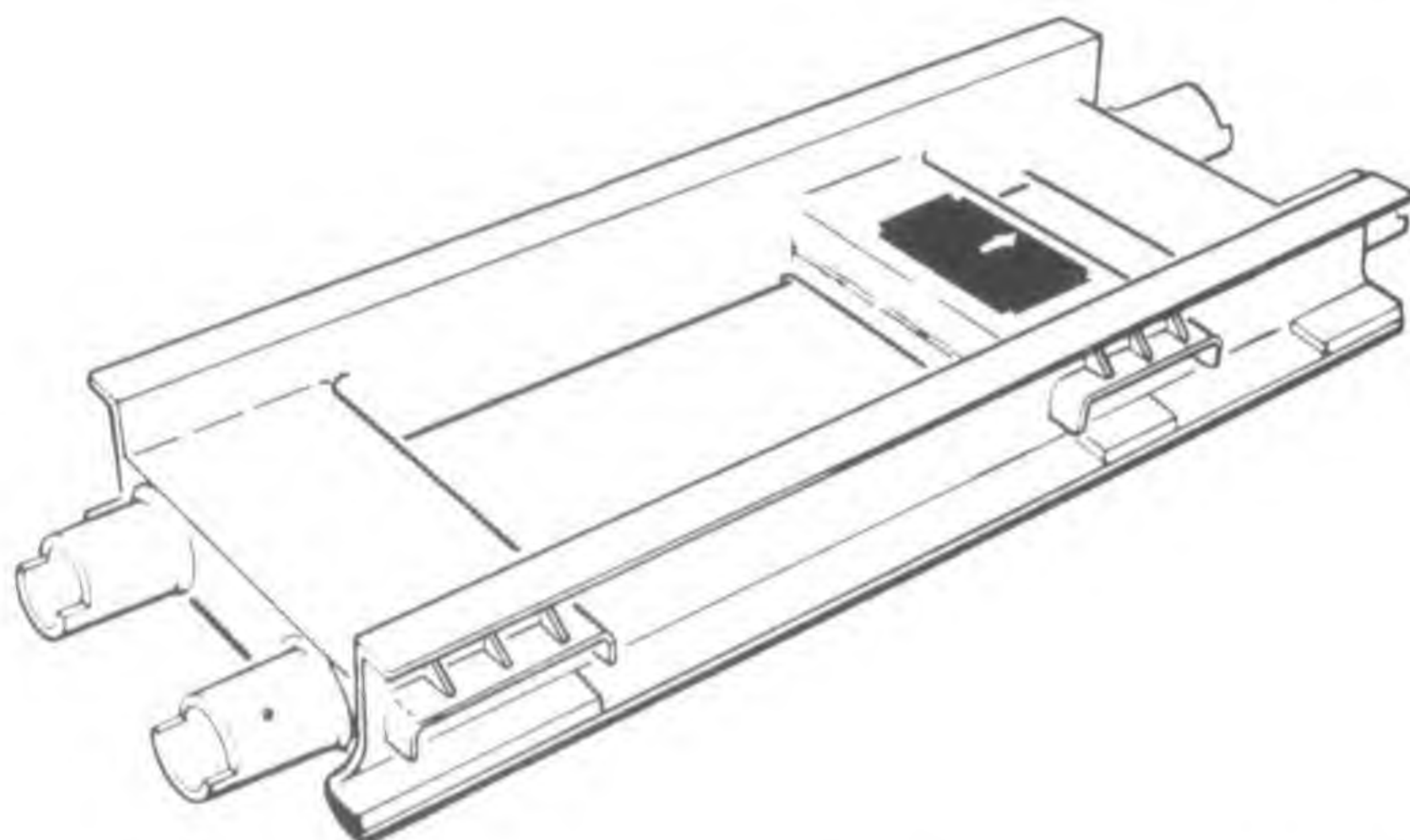
Figure 2-63. Aero 65A Skid Adapter



Capacity (Per Support) ... 985 lb  
Weight ..... 301 lb

AVBA-75-(67)

Figure 2-64. Aero 74A Skid/Trailer Adapter



Capacity ..... 5,000 lb  
Weight ..... 130 lb

AVBA-75-(66)

Figure 2-65. Aero 75A MER Center Spacer Assembly

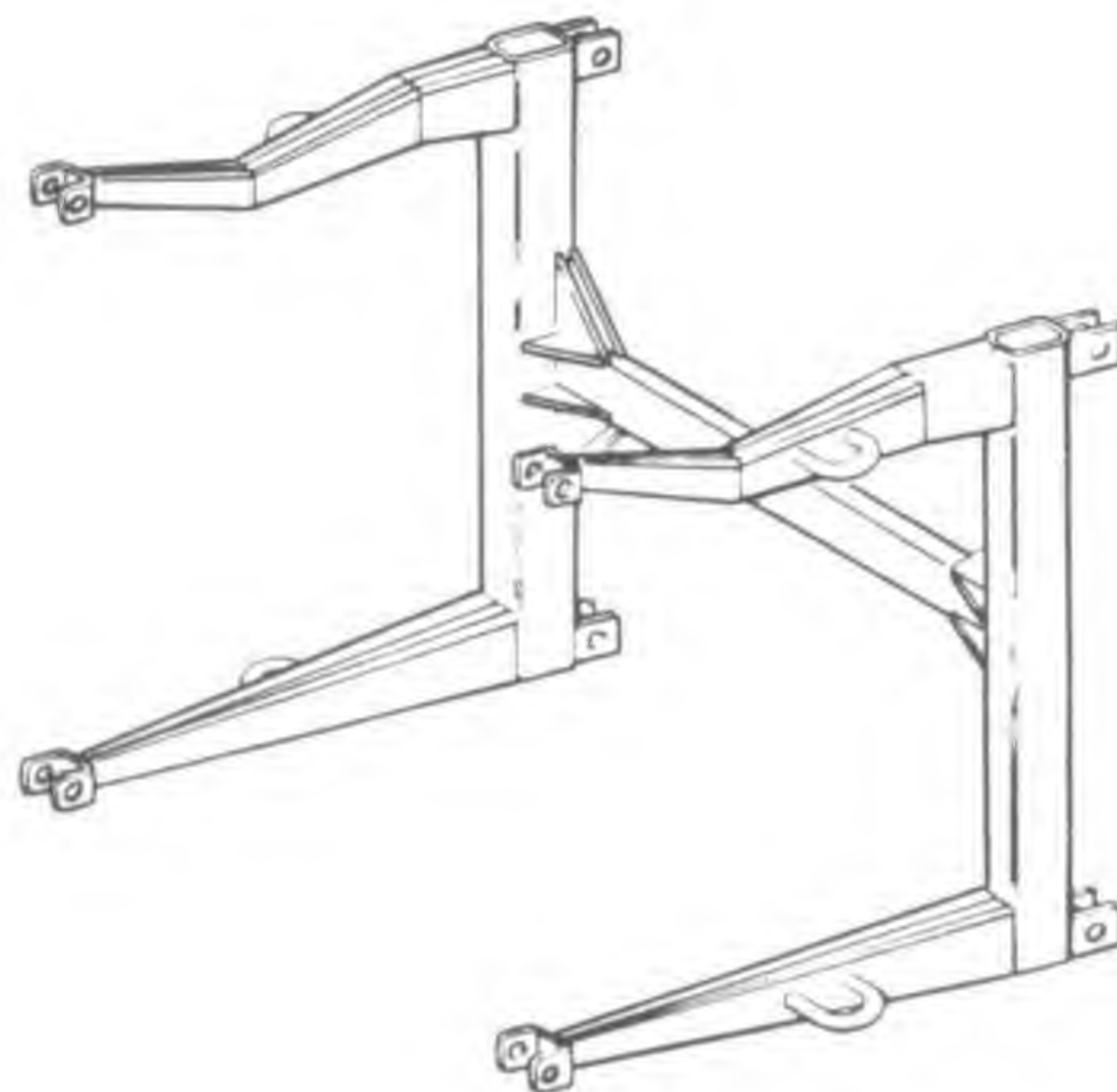
2-97. The Aero 65A skid adapter (figure 2-63) is a welded steel frame consisting of two angle crossbars and two end pieces. Two sets of brackets are welded to the under side of the crossbars. The narrow brackets are 10 inches apart and the wide brackets 15 inches. The brackets are secured to the rails by two quick-disconnect pins. Two adapters are used with each skid. The adapter is used with the Aero 21 weapon skid to mount the Aero 26A truck adapter mounted launcher.

2-98. The Aero 74A skid/trailer adapter (figure 2-64) consists of three weapon support assemblies and two fork receptacle assemblies. The two upper weapon support assemblies are adjustable for weapons of different diameters. The adapter can be used

to handle up to three hard or soft shell weapons from 9 to 18.6 inches in diameter. Lateral adjustment is made by rotating the adjustment screw mounted out-board of each support. Each support has a sliding bar with a series of grooves that provide 12 positions or shoulder stations.

2-99. The Aero 75A MER center spacer assembly (figure 2-65) is a welded frame structure consisting of two rail supports and three crosspieces. Two crosspieces are channel shaped to provide receptacles for forklift type equipment. The third crossbar is tubular and provides rigidity to one end of the adapter. The adapter is equipped with four bar sockets that mate with connecting bars of Aero 74A adapters. The bars are secured by four quick-release pins.

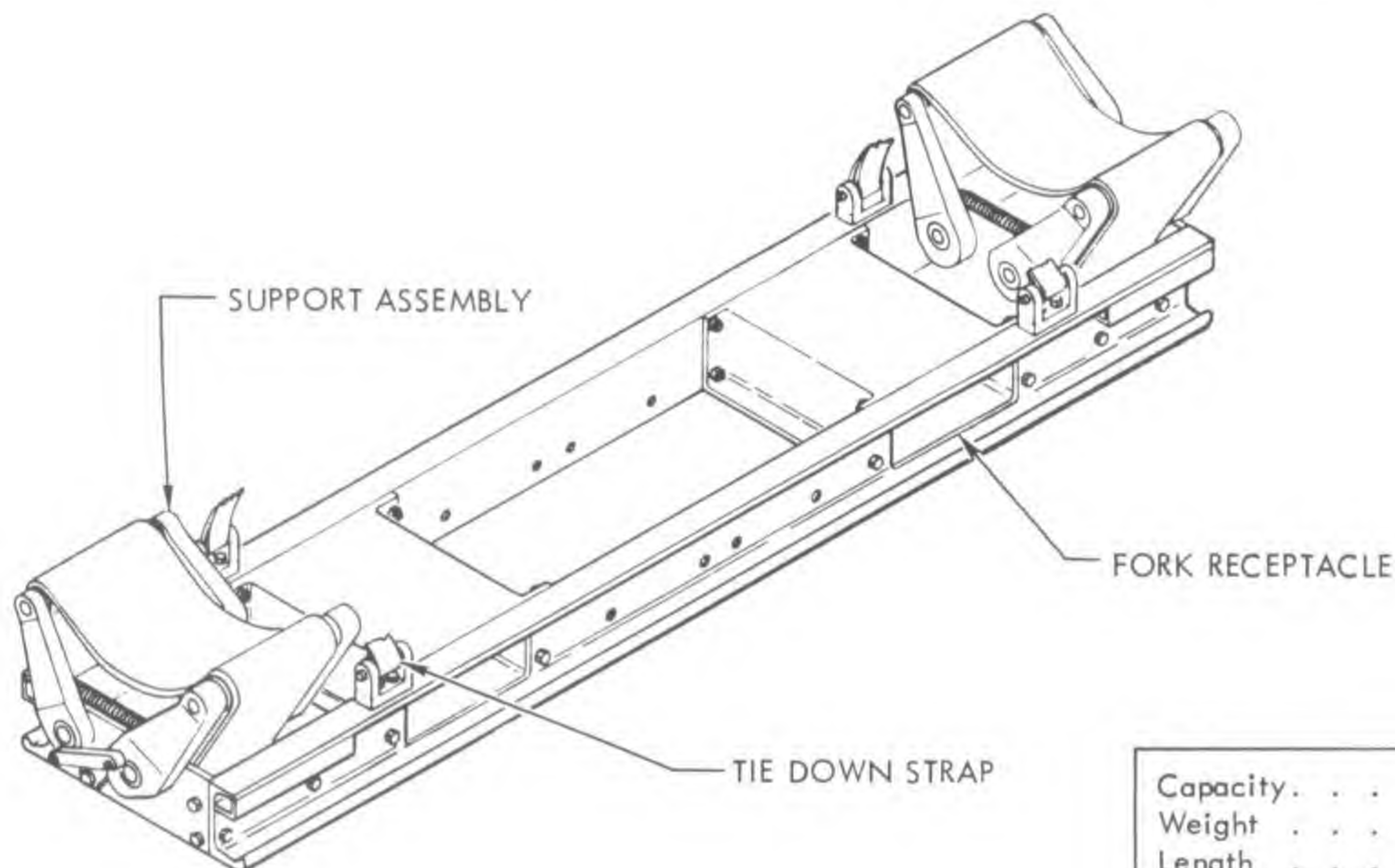




Capacity . . . . . 4,000 lb

AV8A-75-(65)

Figure 2-66. Aero 81A Weapon Loader Adapter



Capacity . . . . .	3000 lb
Weight . . . . .	98 lb
Length . . . . .	61.5 in.
Width . . . . .	12.25 in.
Height . . . . .	9 in.
Cube . . . . .	4 cubic feet (shipping)

AV8A-75-(131)

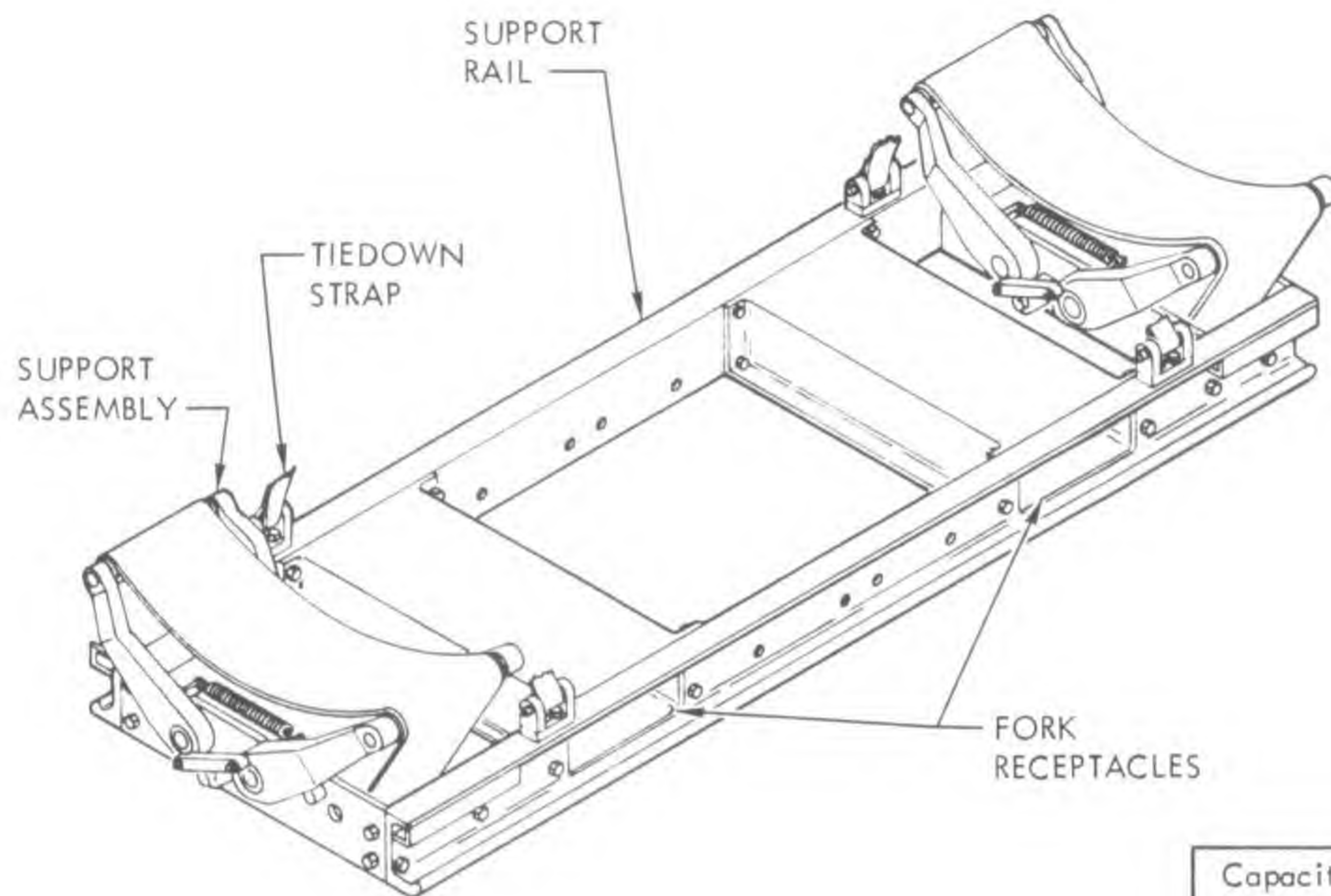
Figure 2-67. MHU-63/E Small Universal Cradle

2-100. The Aero 81A weapon loader adapter (figure 2-66) is a weldment consisting of an H-shaped frame with four supporting stands. Two stands are shaped to support weapons with diameters between 8 and 25 inches. The reverse stands can handle a flat-bottomed adapter, racks and other equipment. It is used to support the weapon being loaded while it is being transferred between the lift forks and manipulating head of various weapons loaders.

2-101. The Small Universal Cradle MHU-63/E (figure 2-67) consists of two metal support rails bolted to two forklift pockets and two end support braces.

The end support braces are equipped with support assemblies, each of which consists of two sets of hinged vertical arms, two rollers, and a wedge-type brake. Small Universal Cradle MHU-63/E is used for storing and transporting weapons that range from 8 to 16 inches in diameter. The support assemblies adjust automatically for weapons within this range of diameters. A small universal stacking frame (MHU-64/E) may be used to stack these cradles for storage. The forklift pockets allow the transporting of a loaded cradle with a SATS weapons loader or Rough Terrain Forklift Truck. A transporter/loader trailer may also be used in transporting this cradle.



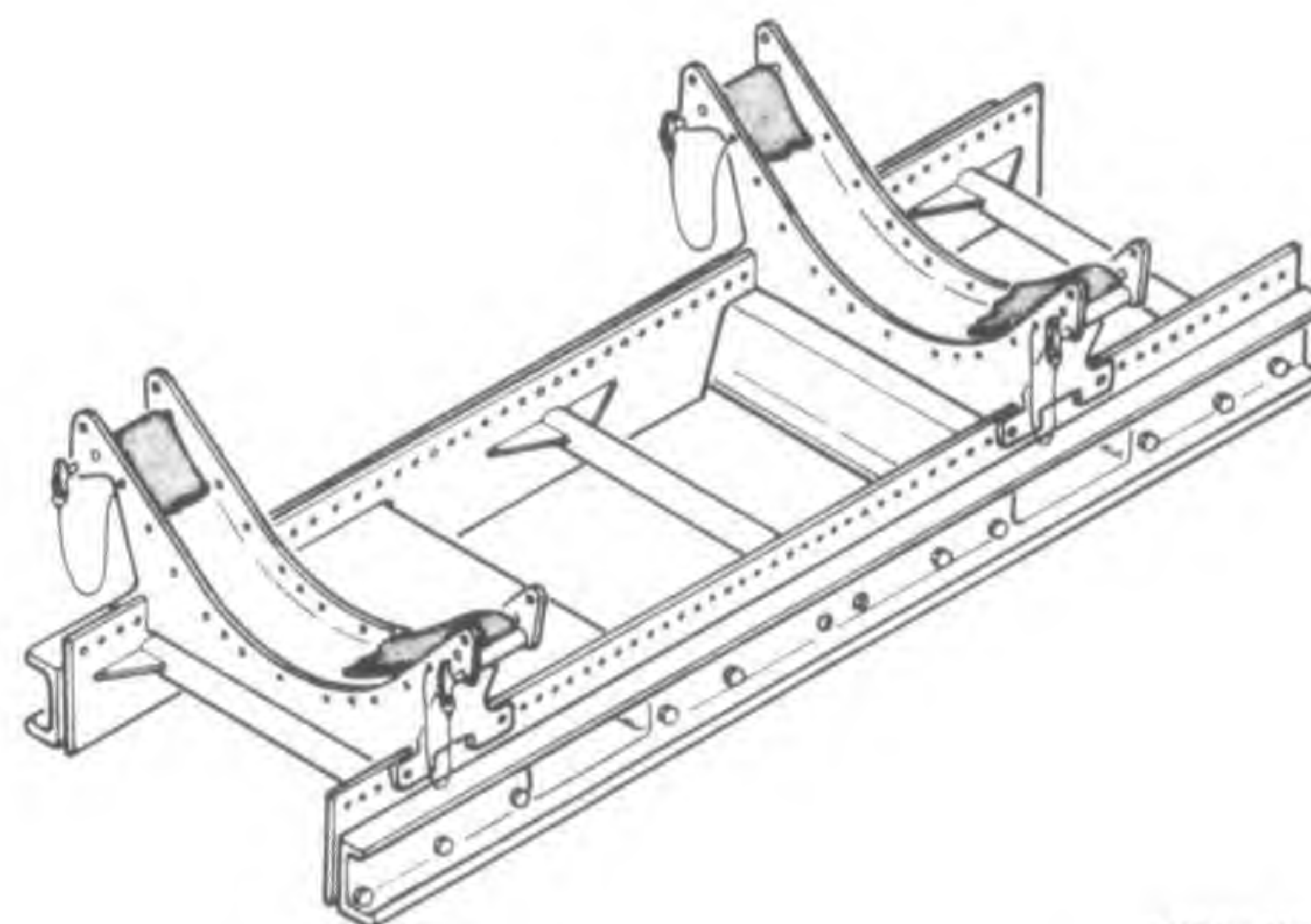


Capacity . . .	3000 lb
Weight . . .	125 lb
Length . . .	61.5 in.
Width . . .	21.13 in.
Height . . .	11 in.
Cube . . .	8.25 cubic feet (shipping)

AV8A-75-(132)

Figure 2-68. MHU-65/E Large Universal Cradle

2-102. The Large Universal Cradle MHU-65/E (figure 2-68) consists of two metal support rails bolted to two forklift pockets and two end support braces. The end support braces are equipped with support assemblies, each of which consists of two sets of hinged vertical arms, two rollers, a flexible belt, and a wedge-type brake. Large Universal Cradle MHU-65/E is used for storing and transporting weapons that range in diameter from 16 to 32 inches. The support assemblies automatically adjust to weapons within this range in diameters. The support assemblies lock with a wedge-type brake. The forklift pockets allow the transporting of a loaded cradle with a SATS weapons loader or Rough Terrain Forklift Truck. A transporter/loader trailer may also be used in transporting this cradle



AV8A-75-(165)

Figure 2-69. Skid Platform MHU-125/E

2-103. The Skid Platform MHU-125/E (figure 2-69) is a modified MHU-65/E cradle. It consists of two metal support rails, rail adapter weldment located inside the rails, bolted to two forklift pockets and two end support braces. The MHU-125/E is used for storing and transporting weapons that range in

diameter from 16 to 32 inches. The forklift pockets allow the transporting of a loaded cradle with a SATS weapon loader or Rough Terrain Forklift Truck. A transporter/loader trailer may also be used in transporting this cradle.



Table 2-4. Handling Equipment

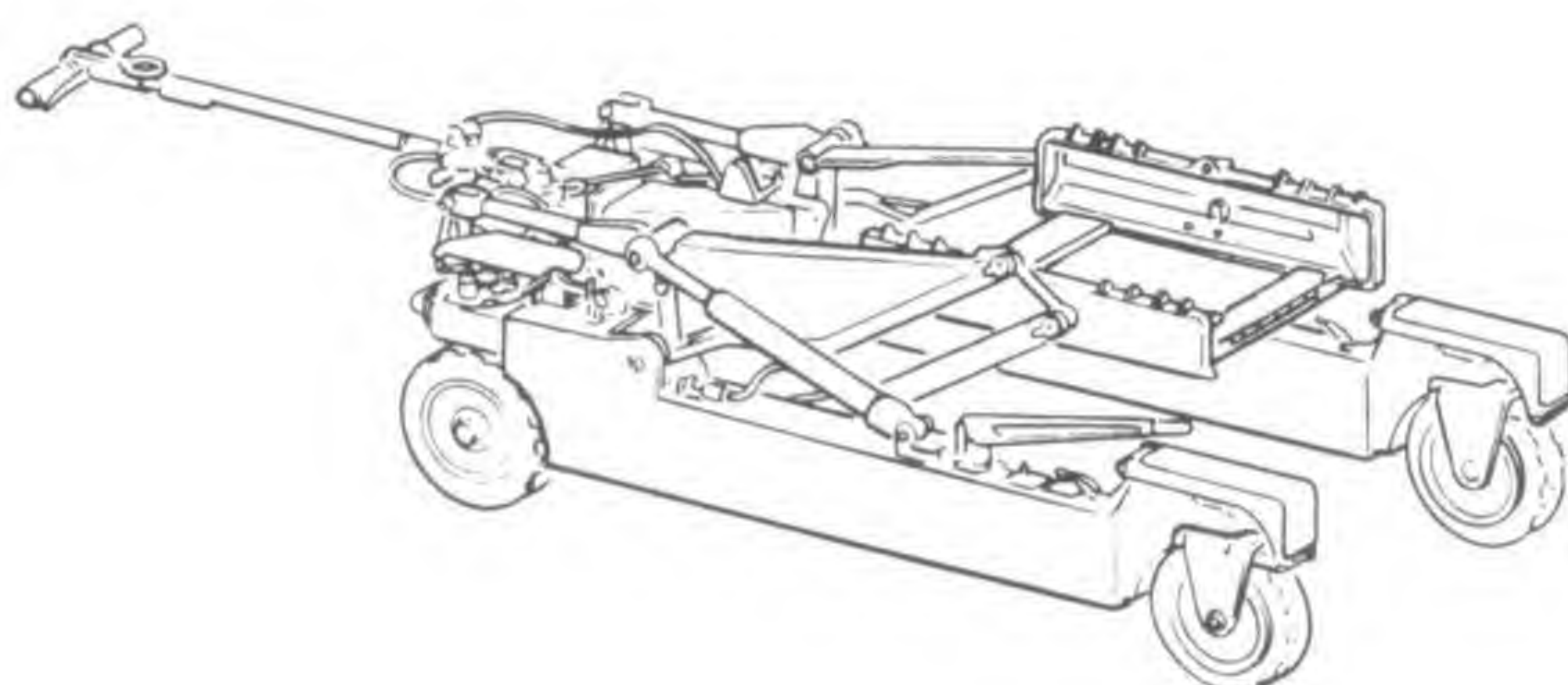
Equipment Nomenclature	Aero 8C/8C- 1 Adpt	Aero 9 Adapter	Aero 12 Bomb Skid					Aero 18A Adapter	Aero 21 Weapon Skid							Aero 30A/ 30A-2 Adapter	Aero 36A Adapter
	Aero 12 Bomb Skid and Aero 84A and Aero 30A/30A-2 Adapter	Aero 12 Bomb Skid	Aero 8C/8C-1 and Aero 84A and Aero 30A/30A-2 Adapter	Aero 9 Adapter	Aero 18A Adapter	Aero 63A Adapter	Aero 64A Adapter	Aero 12 Bomb Skid	Aero 36A and Aero 65A Adapter	Aero 63A Adapter	Aero 63A and Aero 64A Adapter	Aero 74A Adapter	Aero 74A and Aero 75A Adapter	Aero 33 Bomb Truck and Aero 62A/A Adapter	Aero 12 Bomb Skid and Aero 8C-1 and Aero 84A Adapter	Aero 33 Bomb Truck	
Weapon/ Store																	
MK 81, 82 LDGP																X	
MK 86, 87 Practice Bomb																X	
MK 81, 82 Retard																X	
MK 83 LDGP																X	
MK 88 Practice Bomb																X	
MK 20 MOD 2/3 Rockeye																X	
CBU-24, -29, -49																X	
MK 36 Destructor																X	
MK 40 Destructor																X	
MK 77 MODS 2 and 4																X	
AIM-9B, -9D, -9G, and 9H	X														X		
LAU-10A/A, -10B/A 1chr/SUU-40/44					X			X								X	
LAU-60/A, -61/A, -69/A 1chr					X			X								X	
LAU-68/A 1chr																X	
MK 124 Practice Bomb					X	X		X	X	X						X	
MK 106 Practice Bomb																	
MK 76 Practice Bomb				X													
Fuel Tank									X					X			



Table 2-4. Handling Equipment (Continued)

Equipment Nomenclature	Aero 51A Weapon Trailer				Aero 62A	Aero 63A		Aero 63A-1	Aero 64A		Aero 65A	Aero 74A	Aero 75A	Aero 81A	ADU- 342/ E or 352/E	MHU- 65/E MHU- 125/E 63/E Aero 58A	MHU-61/E Sidewinder Cradle
	Basic	Aero 74A Adapter	Aero 74A and Aero 75A Adapter	Aero 33 Bomb Truck and Aero 21 Weapon Skid	Aero 21 Weapon Skid	Aero 63A-1 Adapter and Aero 21 Weapon Skid	Aero 63A Adapter and Aero 21 Weapon Skid		Aero 12 Bomb Skid	Aero 21 Weapon Skid							
Weapon/ Store																	
MK 81, 82 LDGP	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	Aero 47A/MJ-7 or A/S 32K-1 SATS	
MK 86, 87 Practice Bomb	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	Aero 47A/MJ-7 or A/S 32K-1 SATS	
MK 81, 82 Retard	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	Aero 47A/MJ-7 or A/S 32K-1 SATS	
MK 83 LDGP	X			X	X				X	X	X	X	X	X	X	Aero 47A/MJ-7 or A/S 32K-1 SATS	
MK 88 Practice Bomb	X			X	X				X	X	X	X	X	X	X	Aero 47A/MJ-7 or A/S 32K-1 SATS	
MK 20 MOD 2/3 Rockeye	X	X	X	X	X				X	X	X	X	X	X	X	Aero 47A/MJ-7 or A/S 32K-1 SATS	
CBU-24, -29, -49	X	X	X	X	X				X	X	X	X	X	X	X	Aero 47A/MJ-7 or A/S 32K-1 SATS	
MK 36 Destructor	X	X	X	X	X				X	X	X	X	X	X	X	Aero 47A/MJ-7 or A/S 32K-1 SATS	
MK 40 Destructor	X			X	X				X	X	X	X	X	X	X	Aero 47A/MJ-7 or A/S 32K-1 SATS	
MK 77 MODS 2 and 4		X		X	X				X	X	X	X	X	X	X	Aero 47A/MJ-7 or A/S 32K-1 SATS	
AIM-9B, -9D, -9G, and 9H																	X
LAU-10A/A, -10B/A 1chr/SUU-40/44	X	X	X	X	X				X	X	X	X	X	X	X	Aero 47A/MJ-7 or A/S 32K-1 SATS	
LAU-60/A, -61/A, -69/A 1chr	X	X	X	X	X				X	X	X	X	X	X	X	Aero 47A/MJ-7 or A/S 32K-1 SATS	
LAU-68/A 1chr	X	X	X	X	X				X	X	X	X	X	X	X	Aero 47A/MJ-7 or A/S 32K-1 SATS	
MK 124 Practice Bomb	X	X	X	X	X				X	X	X	X	X	X	X	Aero 47A/MJ-7 or A/S 32K-1 SATS	
MK 106 Practice Bomb																	
MK 76 Practice Bomb	X																
Fuel Tank				X	X				X	X	X	X	X	X	X	Aero 47A/MJ-7 or A/S 32K-1 SATS	



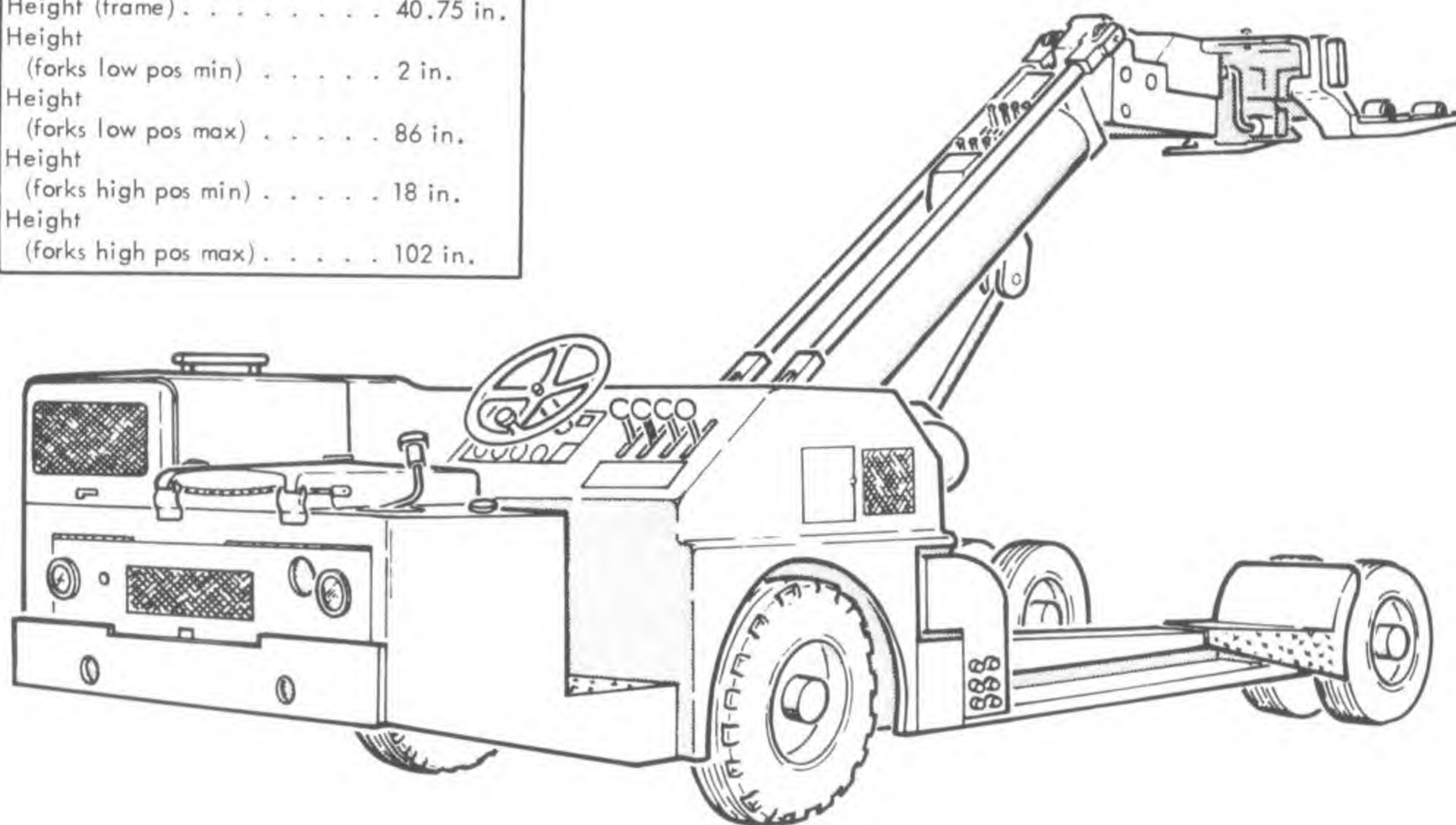


Capacity	4,000 lb
Length	146 in.
Width	43.5 in.
Height	42.5 in.

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Figure 2-70. Aero 33 Bomb Truck

Capacity	4,000 lb
Length	206 in.
Width (minimum)	63 in.
Width (maximum)	135 in.
Height (frame)	40.75 in.
Height (forks low pos min)	2 in.
Height (forks low pos max)	86 in.
Height (forks high pos min)	18 in.
Height (forks high pos max)	102 in.



AV8A-75-(63)

Figure 2-71. SATS Weapons Loader (A/S 32K-1)

#### 2-104. LOADING EQUIPMENT.

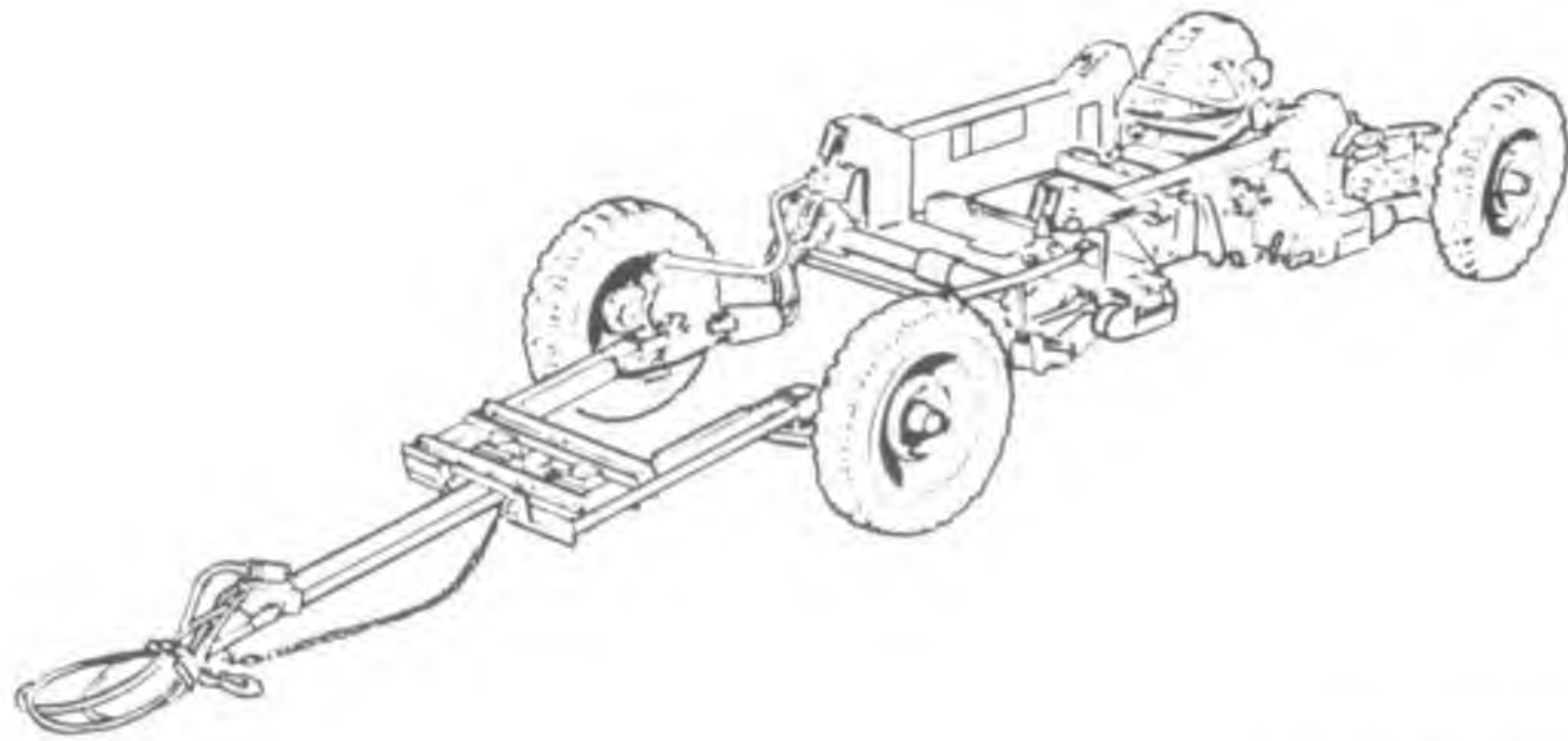
2-105. The recommended loading and unloading equipment used with the AV-8A aircraft weapons, stores and handling equipment is as follows:

2-106. The Aero 33 bomb truck (figure 2-70) is fitted with Aero 62A tray to support the Aero 21A weapon skid or an Aero 36 truck adapter.

2-107. The SATS weapon loader A/S32K-1 (figure 2-71) is used to load externally carried weapons.

The loader is a self-propelled, rear wheel drive vehicle with hydraulic brakes and rear wheel power steering. The lifting mechanism consists of a lift boom, hydraulic system, and manipulating head. The lift boom is operated by a hydraulic cylinder mounted in the midsection of the boom support. The head is capable of limited lateral and longitudinal motions as well as tilting and yawing. A lifting fork can be attached to the head with quick-release pins and can be mounted in three positions.





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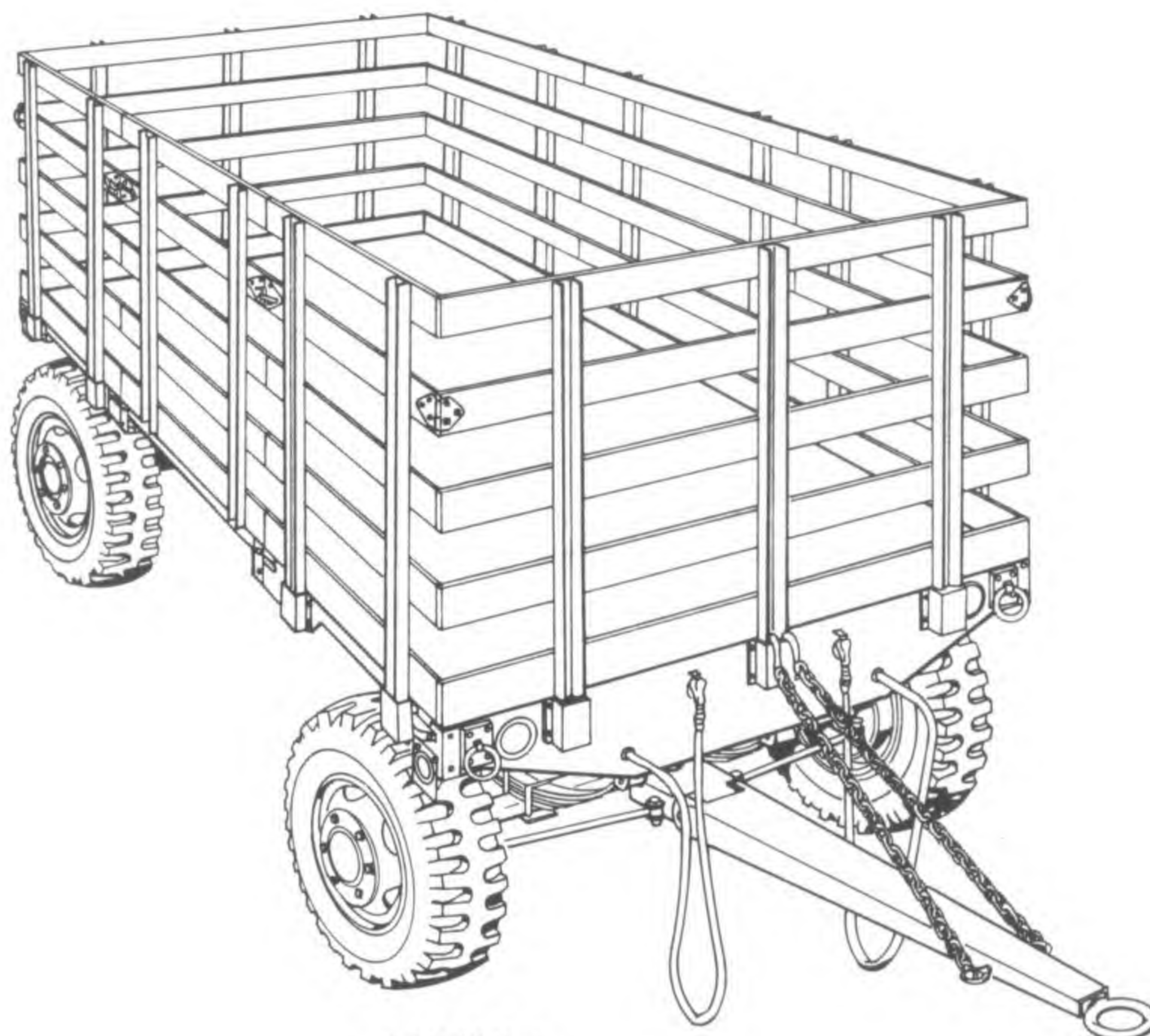
Figure 2-72. SATS Trailer (A/M 32K-3)

2-108. The A/M32K-3 (SATS) trailer (figure 2-72) is designed to transport and load stores onto aircraft without intermediate transfer operations. The trailer has a 3500-pound capacity, is 60 inches wide and 224 inches long with towbar attached. The trailer lifting frame can be maneuvered to a height of 6 1/2 to 40 inches above the terrain. The lifting frame incor-

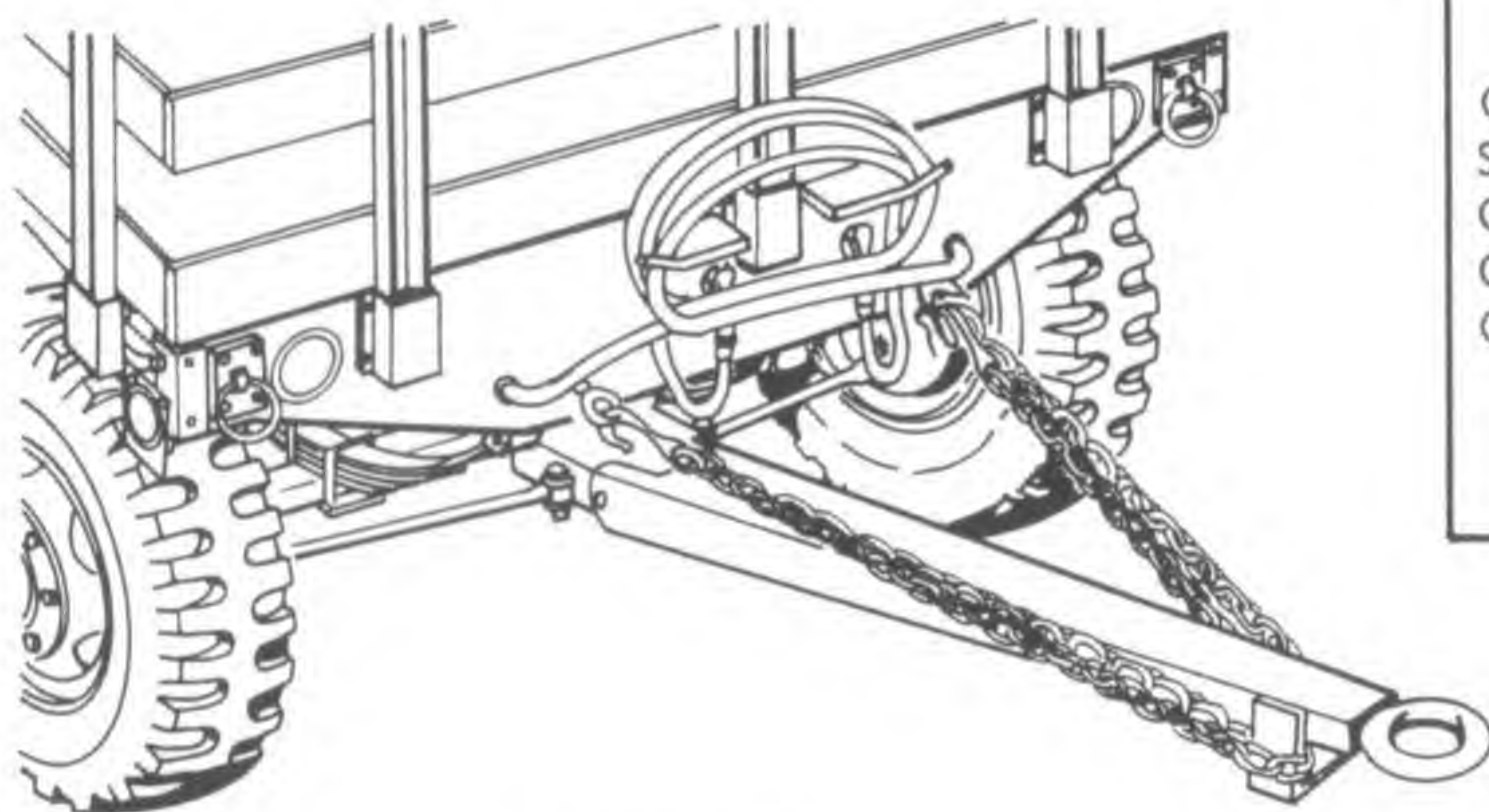
porates provisions for maneuvering to tilt, roll, and yaw positions. Wheels on the trailer can be rotated 90 degrees from their normal fore and aft position for maneuvering purposes.

2-109. The A/M32K-4 and -4A rough terrain trailer (figure 2-73) is a four wheeled, towable, flat bed unit constructed of light weight aluminum. The bed sections are removable to facilitate loading and unloading of transported weapons. Removable side and end racks are provided for retaining cargo. The trailer is equipped with tie down bars and straps for use in handling weapons, cradles and stacking frames. The trailer can be towed by prime movers, having a suitable pintle hook, 24 VDC electrical system and a compressed air source supplying 85 to 100 psi to operate the trailer brakes. With a maximum load of 8000 pounds, the trailer can be towed over rough terrain at 5 MPH., on improved roads at 25 MHP., and on smooth surfaces at 40 MPH. The maximum fording depth of the trailer is 30 inches and the turning radius is 15 feet. The trailer can be towed singly or in trains of two or three.





A/M 32K-4



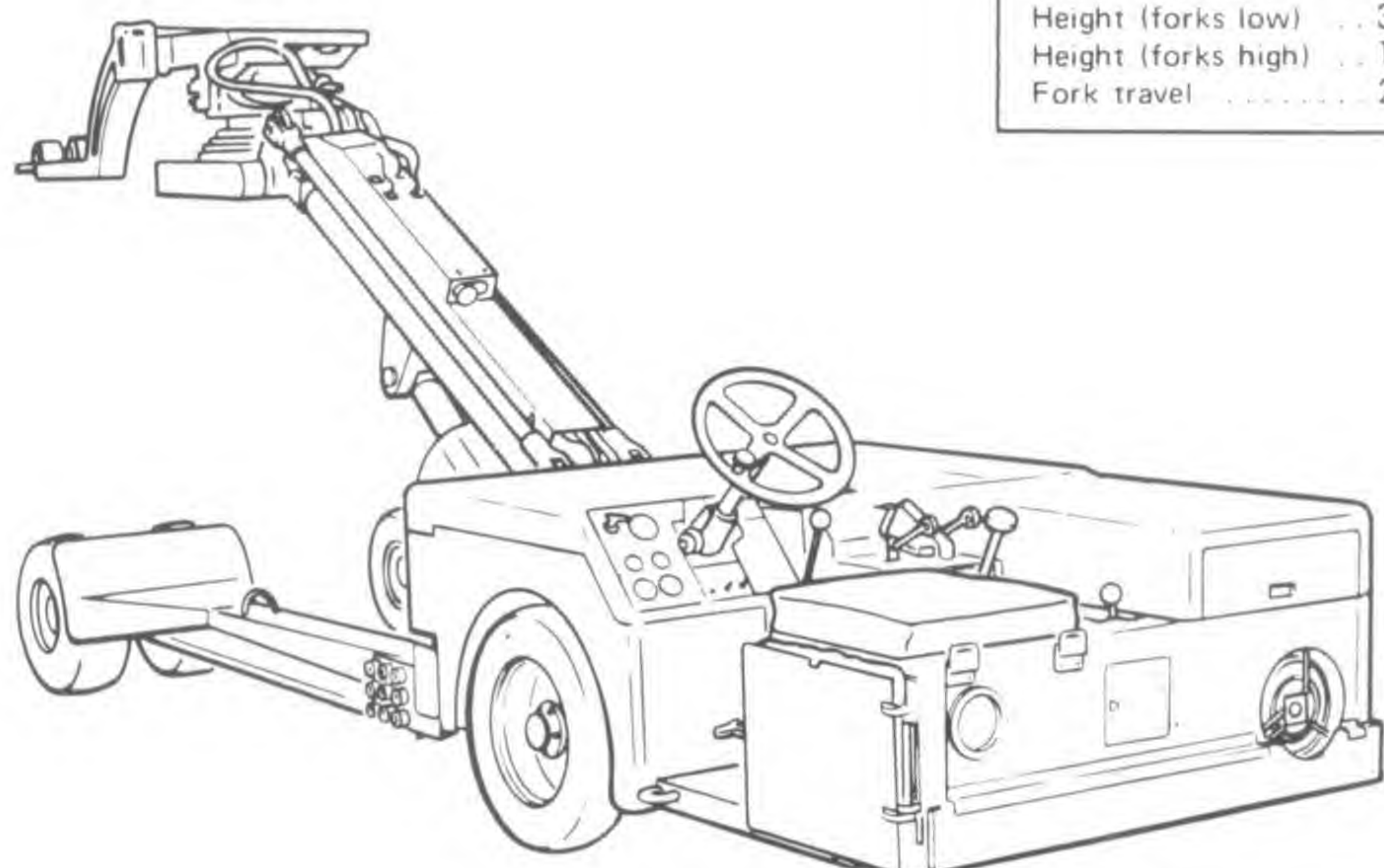
A/M 32K-4A

	A/M 32K-4	A/M 32K-4A
GROSS WEIGHT . . . . .	2190 lbs	2490 lbs
SHIPPING CUBAGE . . . . .	260 cu ft	294 cu ft
OVERALL WIDTH . . . . .	72 in.	72 in.
OVERALL LENGTH . . . . .	132 in	168 in
OVERALL HEIGHT		
LOADED - 8000		
lbs MAX . . . . .	38.75 in	38.75 in
UNLOADED . . . . .	40 in	40 in

AV8A-75-(177)

Figure 2-73. Rough Terrain Trailer (A/M 32K-4)





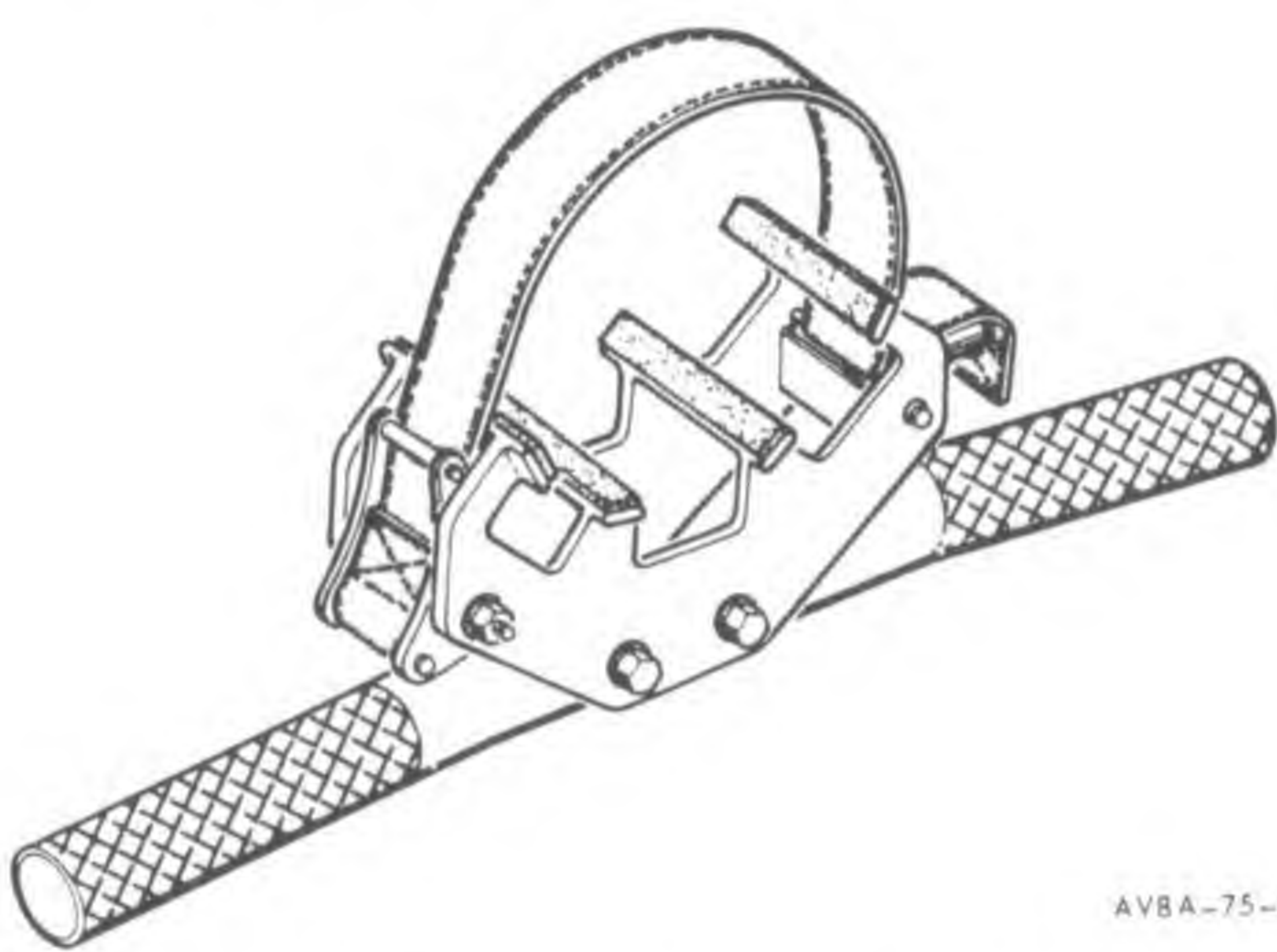
Capacity	4,500 lb
Length	200.25 in.
Width	53 in.
Width (extended)	142 in.
Height (forks low)	30 in.
Height (forks high)	109 in.
Fork travel	2 to 93 in.

AV8A-75-(62)

Figure 2-74. Aero 47A/MJ-7 Weapons Loader

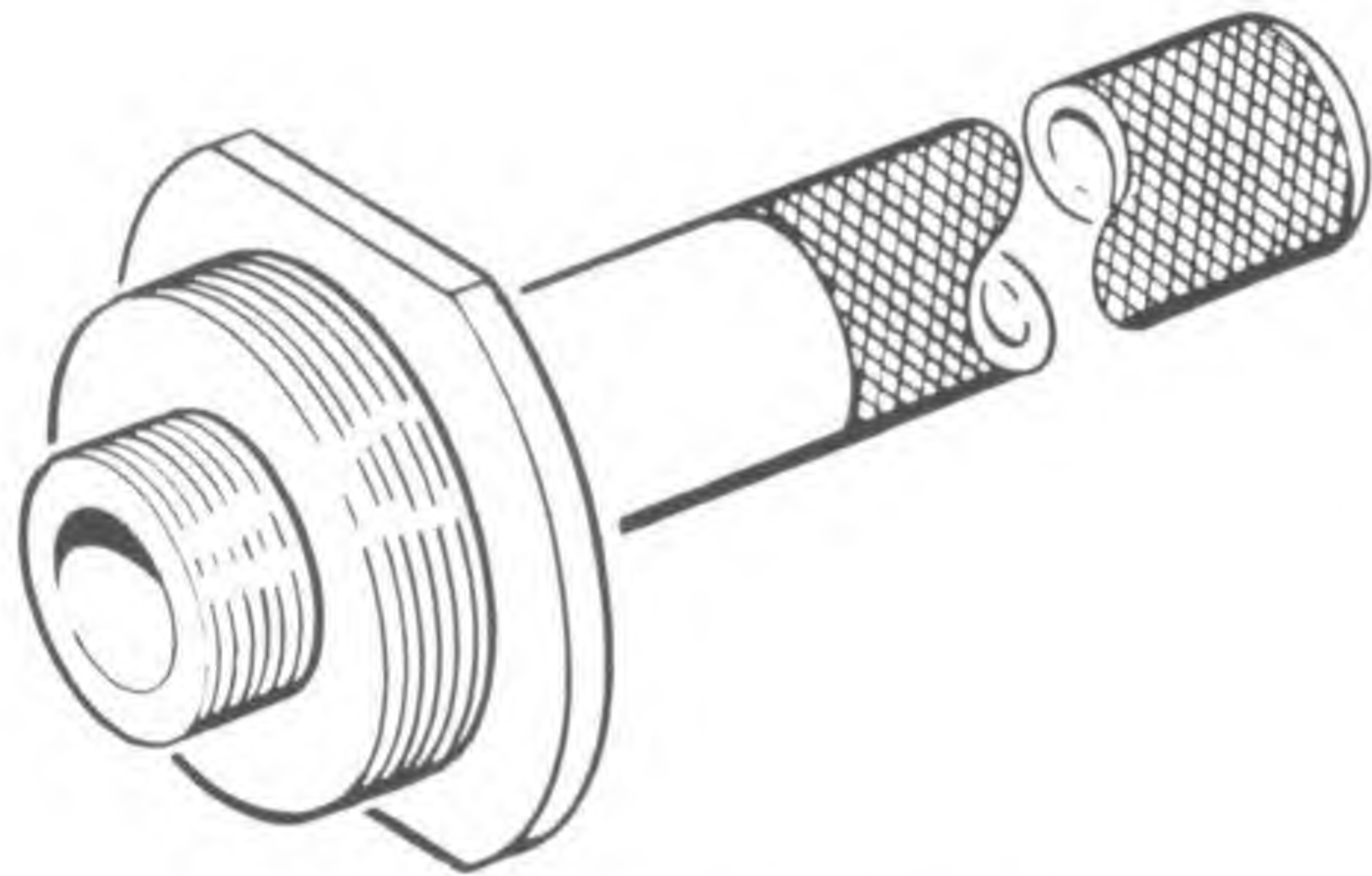
2-110. The Aero 47A/MJ-7 weapons loader (figure 2-74) is used to load externally carried munitions. The loader is a self-propelled vehicle with rear wheel drive, four wheel hydraulic brakes, mechanical parking brakes, and rear wheel power steering. The lifting mechanism consists of a lift boom, hydraulic system, and a manipulating head. The lift boom is operated by a hydraulic cylinder mounted in the midsection of the boom support. The head is capable of limited ram, lateral, and longitudinal motions as well as tilting, rolling and yawing.

2-111. The Aero 64/A hoisting bar (figure 2-75) is a manually used lifting device that is used for hoisting small weapons up to 8 inches in diameter. The hoisting bar is placed under the weapon and a web strap secures the weapon to the hoist.



AV8A-75-(61)

Figure 2-75. Aero 64A Hoisting Bar



Capacity	500 lb
Length	40 in.
Width	4.5 in.

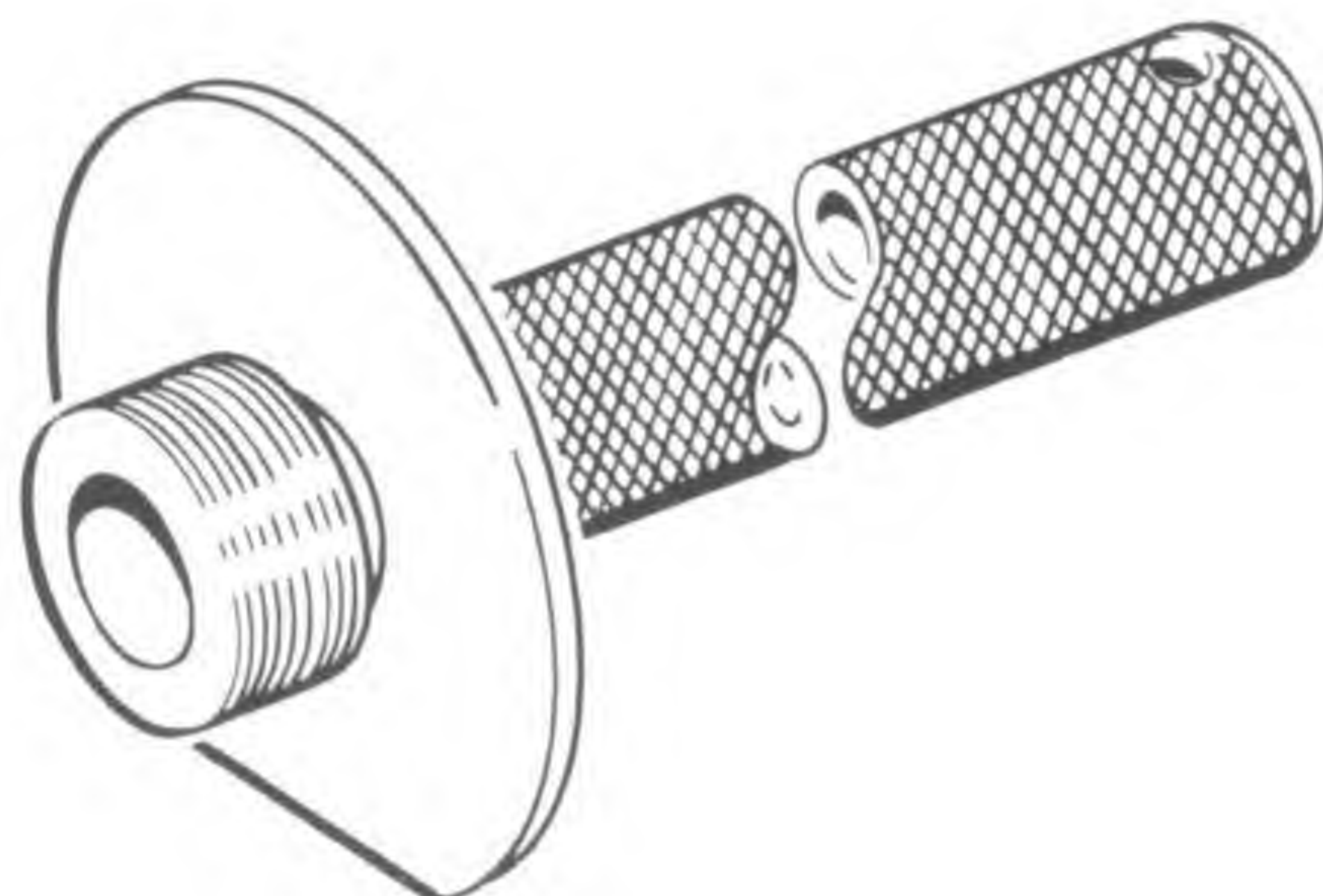
AV8A-75-(60)

Figure 2-76. Aero 66A Manual Hoisting Bar

2-112. The Aero 66A manual hoisting bar (figure 2-76) is threaded to screw into the bomb's nose and tail seat to provide a means for manually handling

and loading GP bombs. It contains two threaded bosses and can be used on bombs with or without the adapter boosters installed.



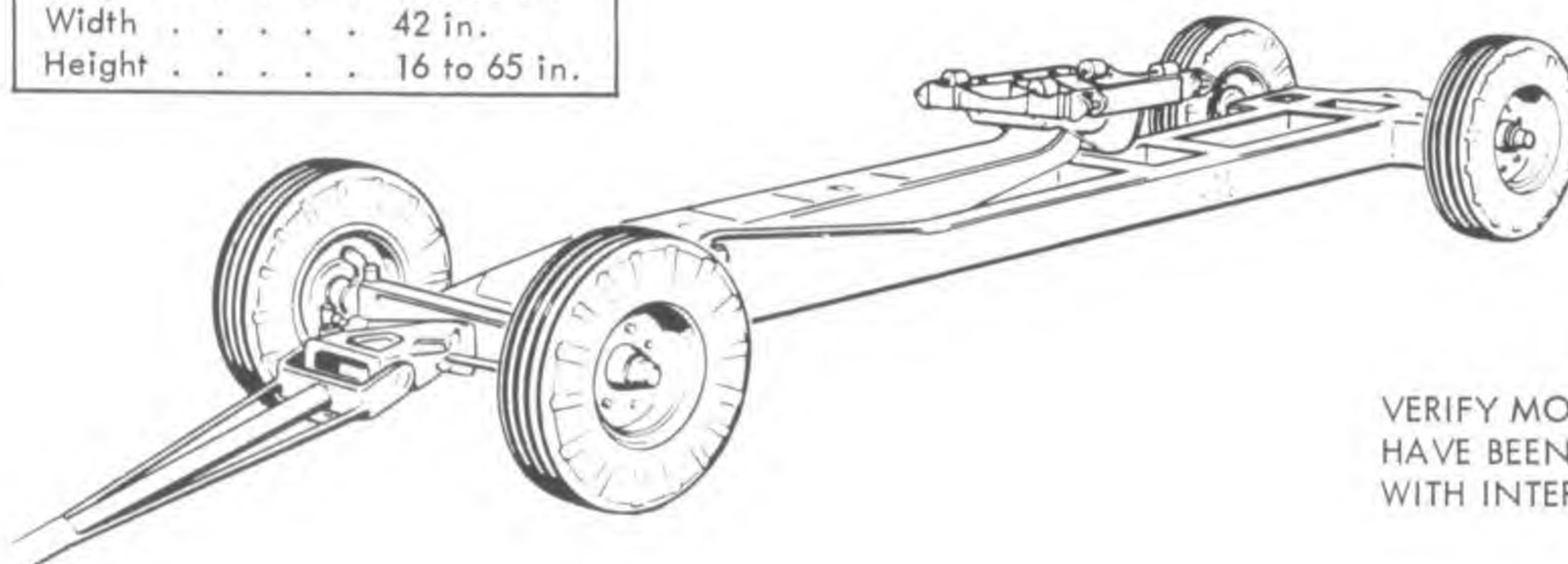


Capacity	500 lb
Length	32 in.
Width	4.13 in.

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Figure 2-77. Aero 69A Manual Hoisting Bar

Capacity	2,200 lb
Length	178.63 in.
Width	42 in.
Height	16 to 65 in.



### CAUTION

VERIFY MOD 0, 1 AND 2 TRAILERS  
HAVE BEEN REWORKED IN ACCORDANCE  
WITH INTERIN SEB 203 REVISION A.

AV8A-75-11741

Figure 2-78. MK 7 Bomb Trailer

2-113. The Aero 69A manual hoisting bar (figure 2-77) is threaded to screw into the bomb's nose and tail seat to provide a means for manually handling and loading GP bombs. It contains one threaded boss and can be used only on bombs with adapter booster installed.

2-114. The MK 7 series weapons trailer (figure 2-78) can carry a 2200-pound weapon and can be positioned with a towing vehicle or with manpower. The trailer (MOD 1 or MOD 2) is primarily intended for use at shore installation. The MK 7 trailer consists of a frame assembly, hydraulic system, cradle roller assembly, and elevating arm assembly. The MK 7 trailer steering mechanism includes a drawbar handle and fork assembly. The brake lever is located on the trailer aft end and when actuated locks the rear wheels. The hydraulic system control lever controls the elevating arm assembly and

is located at the trailer forward end. The cradle roller assembly is mounted on the elevating arm assembly and is controlled with a handwheel. The cradle can be tilted in a fore-and-aft position with the handwheel. The MOD 2 cradle can also be tilted 15 degrees laterally from the centerline of the cradle. The MOD 1 cradle can be collapsed to a height approximately 16 inches above ground and can be extended to a maximum height of 60 inches above ground. The MOD 2 cradle can be collapsed to a height approximately 17 7/16 inches above the ground and can be extended to a maximum height of 66 7/16 inches above ground. Prior to using any MK 7 trailer, verify that the trailer has been reworked in accordance with ISEB 203, Revision A and identified by stencil marking of one inch letters on trailer frame giving date of test, rated load capacity and qualified for transporting or transporting and loading.



Table 2-5. Loading Equipment

Equipment Nomenclature	Aero 66A Hoisting Bar	Aero 69A Hoisting Bar	Aero 33 Bomb Truck				Aero 47A/A/MJ-7/A/S 32K-1 SATS Weapons Loader								MK 7 Bomb Trailer			A/M32K-4 Rough Terrain Trailer		
	Weapon/ Store		Aero 36A and Aero 62A Adapter and Aero 21 Weapon Skid	Aero 74A Adapter	Aero 74A and Aero 75A Adapter	Aero 74A Adapter	Aero 74A and Aero 75A Adapter	Aero 81A Adapter	ADU-342/E Skid Adapter ADU-352/E Skid Adapter	MHU-63/E Universal Cradle Small	MAU-6S/E Universal Cradle Large MAU- 125/E Skid Platform Aero 58A Skid Adapter Lower Rear Section	Basic	Aero 74A Adapter	Aero 58A Skid Adapter Aero 64A Soft Belt Adapter	Aero 74A Adapter Aero 75A Adapter	MHU-63/E Cradle	MHU-65/E Cradle MHU-125/E and Aero 58A Skid Adapter			
MK 81, 82 LDGP		X	X	X	X	X	X	X	X			X	X		X	X				
MK 86, 87 Practice Bomb			X	X	X	X	X	X	X			X	X		X	X				
MK 81, 82 Retard	X	X	X	X		X	X	X	X			X	X		X	X				
MK 83, LDGP	X	X	X					X		X					X	X				
MK 88 Practice Bomb			X					X				X	X		X	X				
MK 20 MOD 2/3 Rockeye			X	X	X	X	X	X	X	X		X	X		X	X				
CBU-24, -29, -49			X	X	X	X	X	X	X	X		X	X		X	X				
MK 36 Destructor			X	X	X	X	X	X	X			X	X		X	X				
MK 40 Destructor			X	X	X	X	X	X	X			X	X		X	X				
MK 77 MOD 2			X	X		X	X	X	X			X	X	X	X		X			
MK 77 MOD 4			X	X	X	X	X	X	X			X	X		X		X			
LAU-10A/A, 10B/A 1chr/SUU-40/44			X	X	X	X	X	X		X			X			X				
LAU-60/A, 61/A 69/A 1chr			X	X	X	X	X	X		X			X			X				
LAU-68/A 1chr			X	X	X	X	X	X		X			X			X				
MK 124 Practice Bomb			X	X	X	X	X	X	X				X		X					
Fuel Tank			X			X	X	X				X			X					





Length .....	6.25 in.
Width .....	4.38 in.
Height .....	8.5 in.
Weight .....	3 lb

AV8A-75-(58)

Figure 2-79. Multimeter (AN/PSM-4 or Equivalent)

#### 2-115. TEST EQUIPMENT.

2-116. The test equipment is used to verify the proper operation and safe condition of the armament systems and equipment. The test equipment consists of the following:

##### NOTE

The following item of test equipment does not preclude the use of other authorized test equipment.

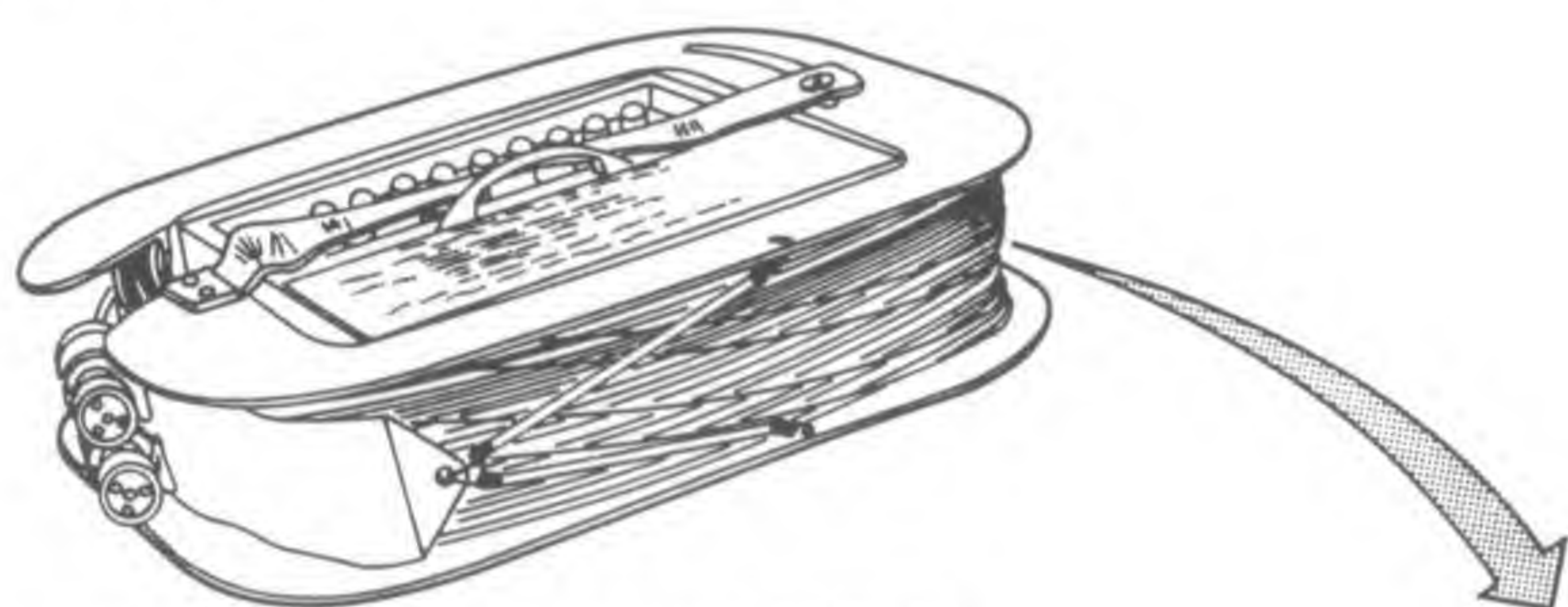
2-117. The multimeter (AN/PSM-4 or equivalent) (figure 2-79) is a standard issue meter capable of indicating resistance (ohms), amperage (ac or dc) and voltage (ac or dc). It is used to test aircraft circuits for which no special test equipment is available or for which reasonably accurate measurements are required.

2-118. The Explosive Release Unit Test Set EXP6101 (figure 2-80) is used to check the stores release and jettison systems of the aircraft. The test set indicates voltage present by the lights on the tester. When voltage is applied to the circuits under test the lights come on. A cancel button on the tester is used to deenergize the circuit to the lights after test of circuit is completed. The test set has a self test feature.

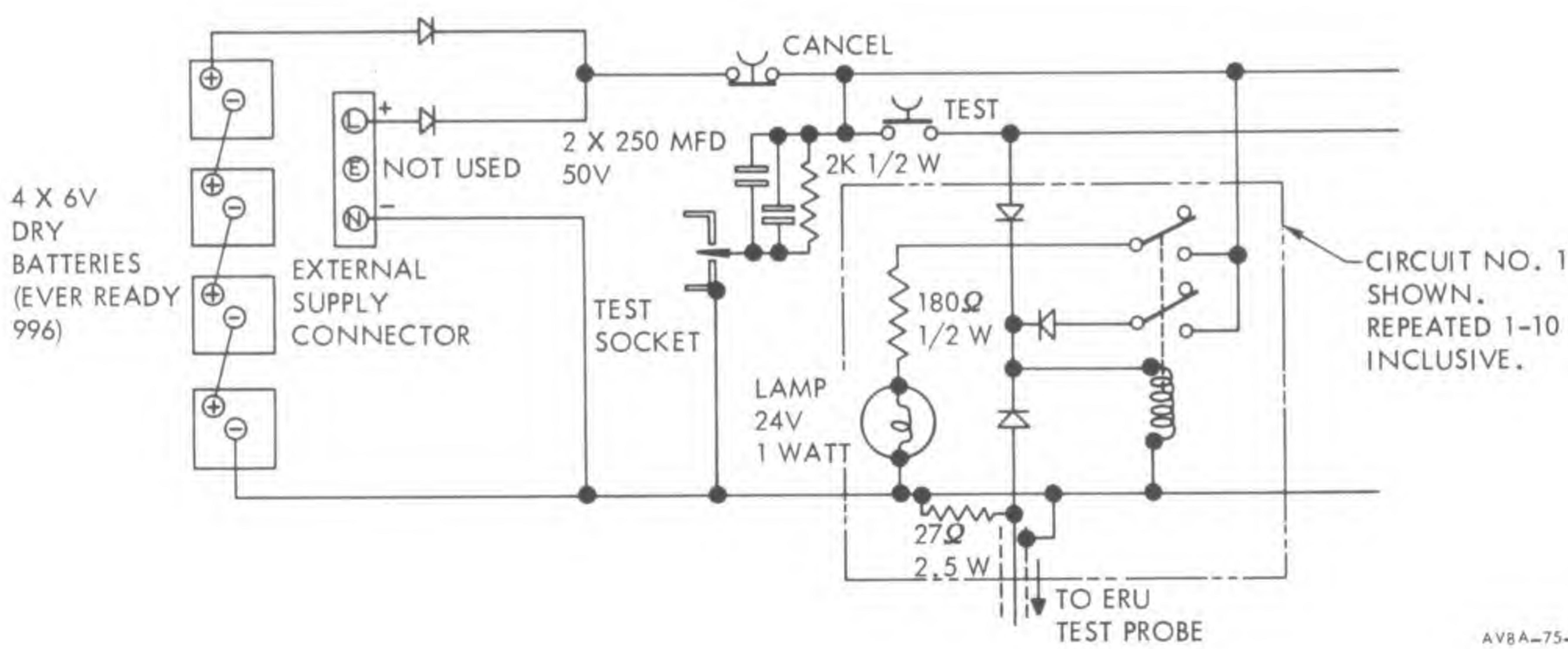
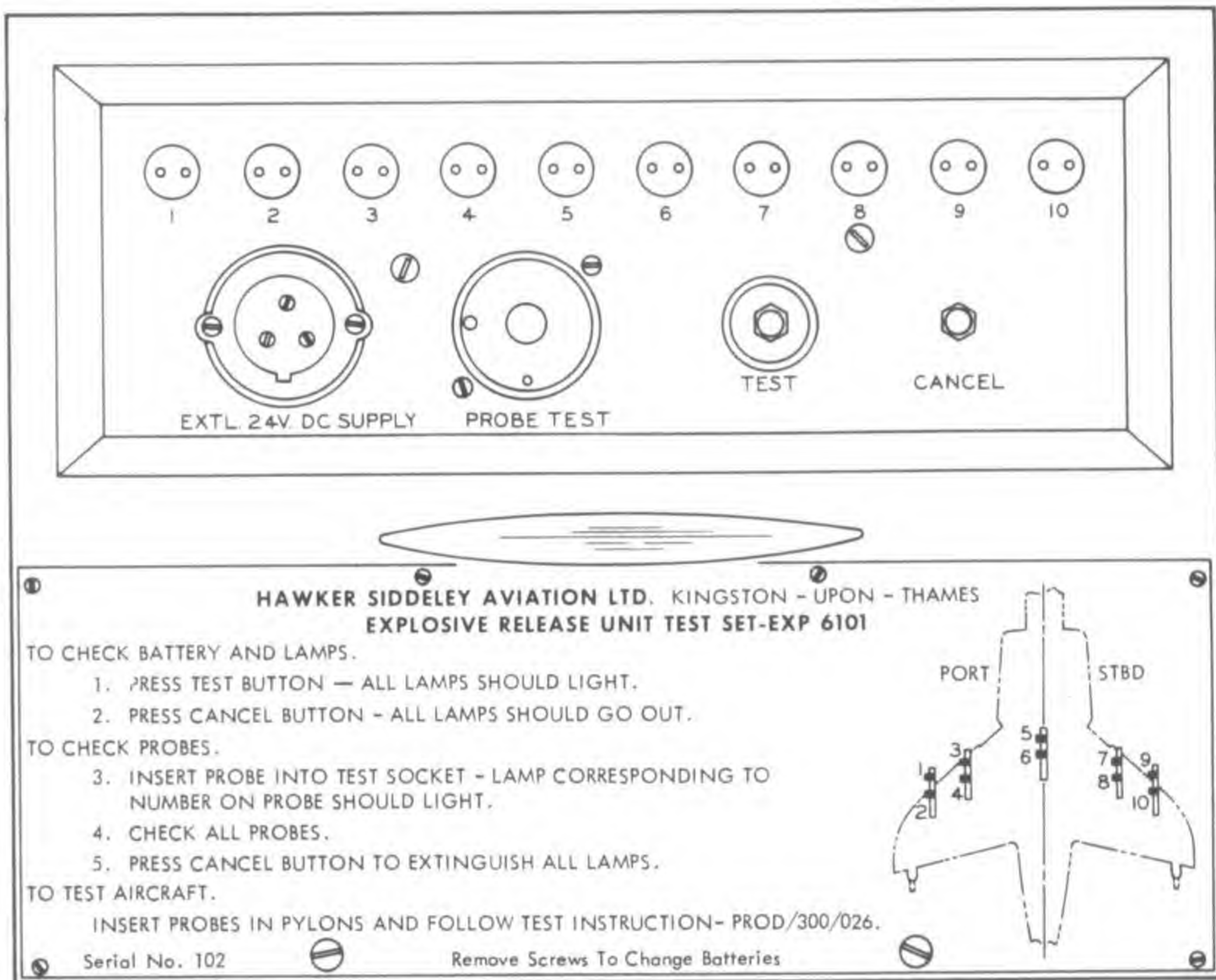
2-119. The TS-2875A/AWM armament firing circuit test set (figure 2-81) is used to test armament circuits for stray voltage and firing voltage. The test set meter indicates DC firing voltage, stray ac voltages and both positive and negative dc voltage. It is provided with a shielded (radiation hazard) cable, a current limiting resistor for rocket safety applications, and pushbutton switch for range sensitivity. The test set, when connected to the aircraft armament circuit, places a 50-milliwatt load on the circuit. For test set self-test, a 1-1/2-volt battery is provided. The breech cap adapter cable P/N CED72400 is used to adapt the test set to the ERU-119 ejector rack unit.

2-120. The AN/ASM-20B test set (figure 2-82) provides checks of the AIM-9 guided missile system. It checks that power supplied by the missile launcher to the missile is within tolerance, that missile firing sequence is correct, and that the launcher safety and missile jettison circuits are functioning properly. In addition, the test set simulates missile tone signals to the launcher and aircraft tone circuits and provides a means of performing stray voltage checks on the missile arming and motor firing circuits. An igniter contact block, mounted on the bottom of the test set case, supports the tester on the launcher rail and provides the electrical connections between the test set and the fuze and motor igniter circuits in the aircraft launcher.





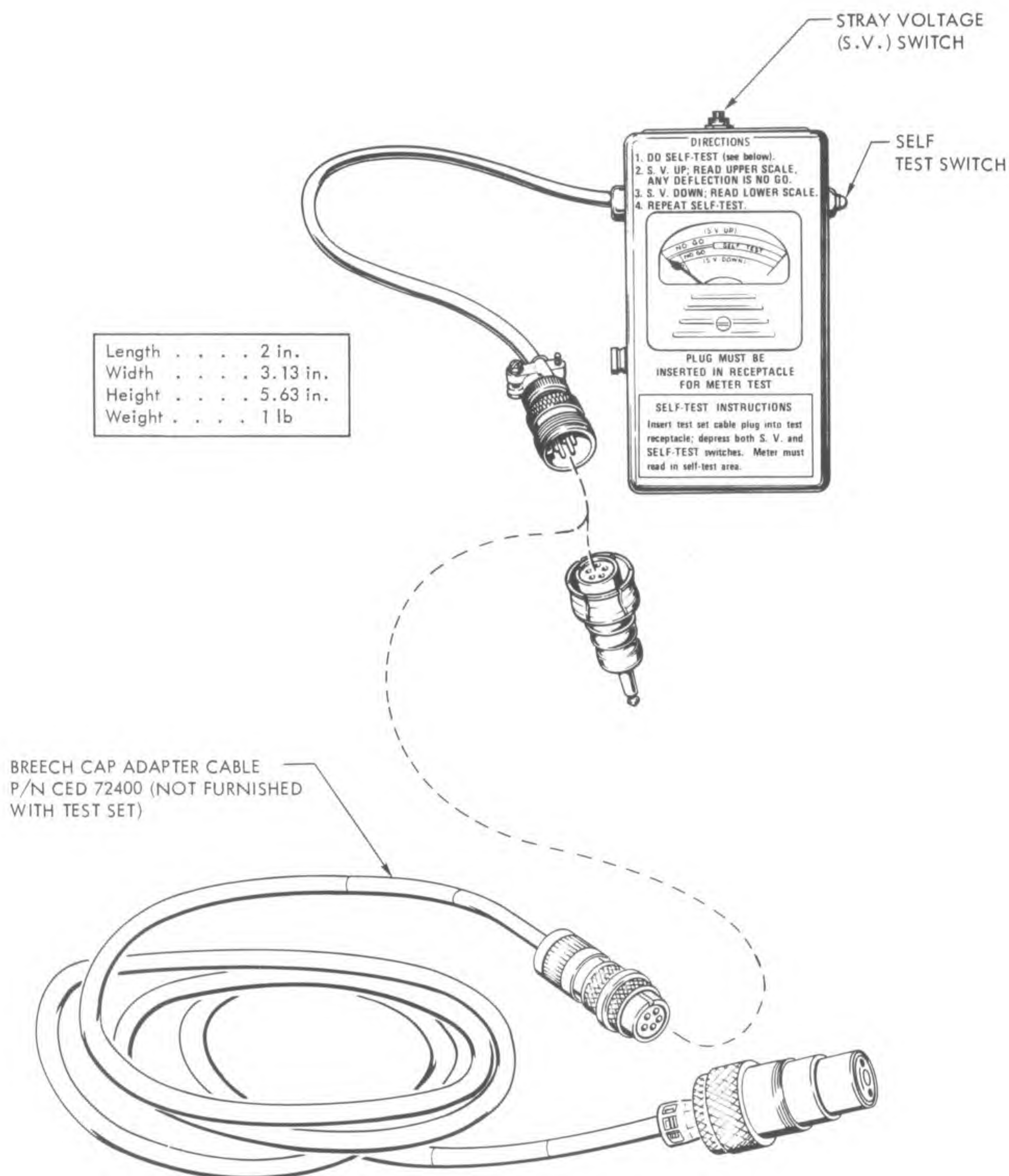
EXPLOSIVE RELEASE UNIT TEST SET



AV8A-75-(57)

Figure 2-80. Explosive Release Unit Test Set - EXP 6101

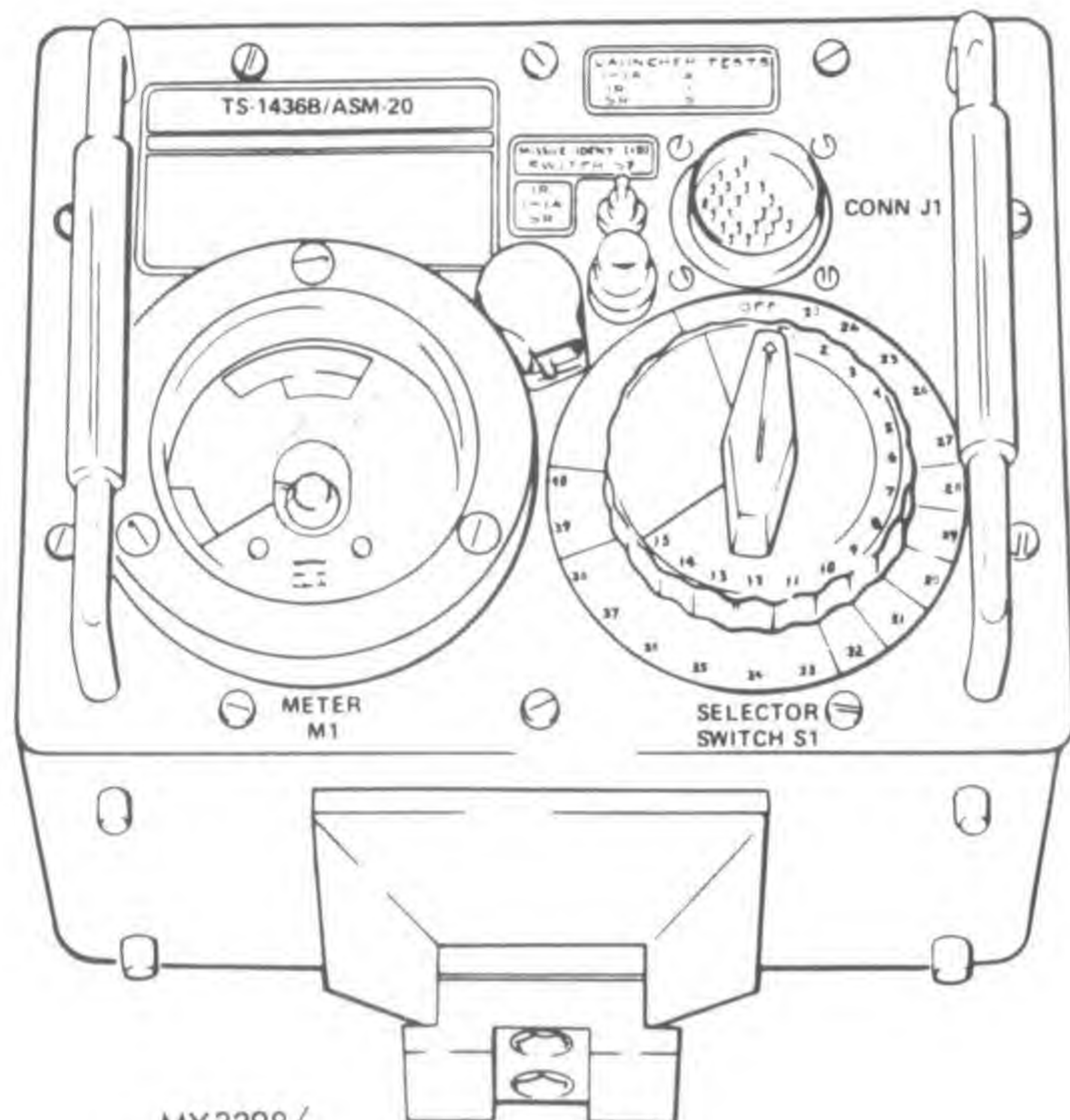




AV8A-75-(56)

Figure 2-81. TS-2875A/AWM Armament Firing Circuit Test Set





Length .....	12.5 in.
Width .....	12 in.
Height .....	12.25 in.
Weight .....	38 lb

MX3298/  
ASM-20  
GAGE  
PRESSURE



ADAPTER CONNECTOR  
P/N 10001-1517359-1  
(AIM-9B ONLY) NOT  
FURNISHED WITH TEST SET



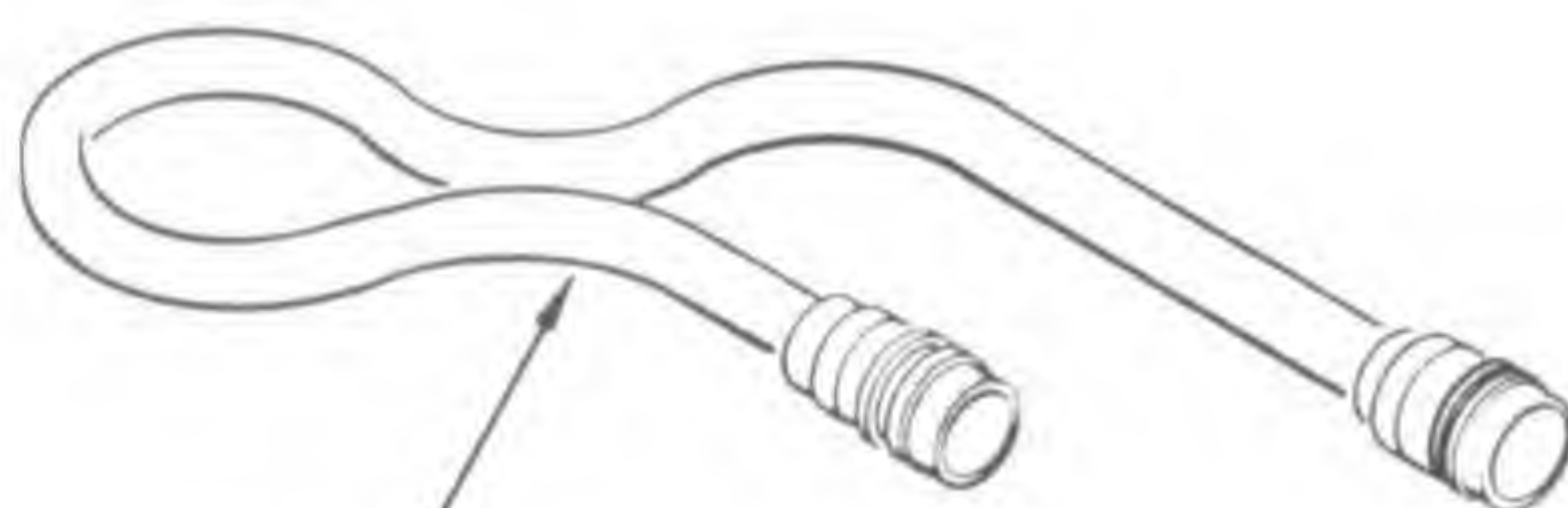
CABLE  
ASSEMBLY  
A/C-TEST



LAU-7  
SAFETY  
PIN



W1 CABLE  
ASSEMBLY  
LAU-7/A



W3 CABLE  
ASSEMBLY  
(AIM-9B ONLY)



AV8A-75-(55)

Figure 2-82. AN/ASM-20B Guided Missile Launcher Test Set



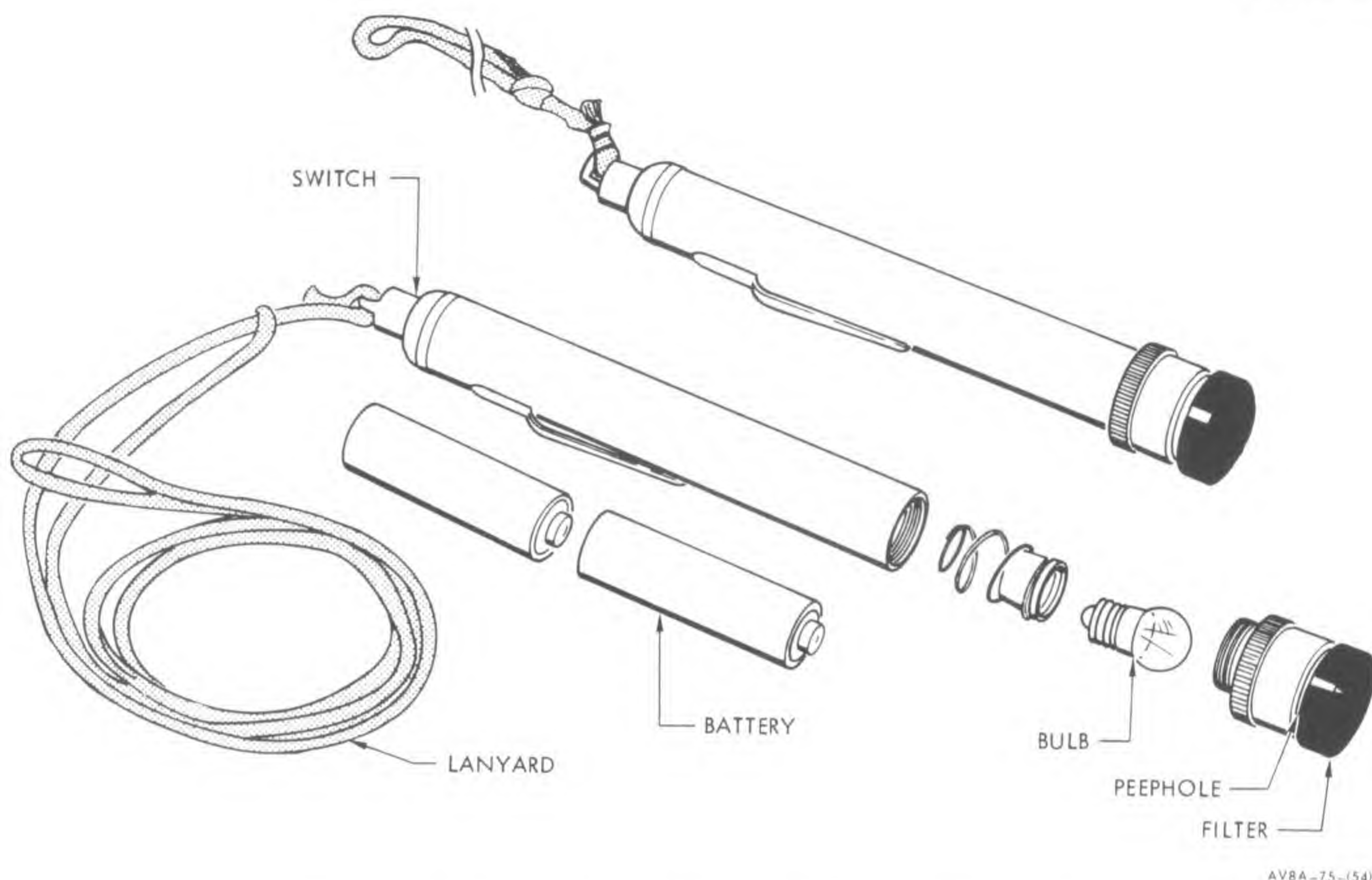


Figure 2-83. Tester, Guided Missile, IR Source, TTU-304/E

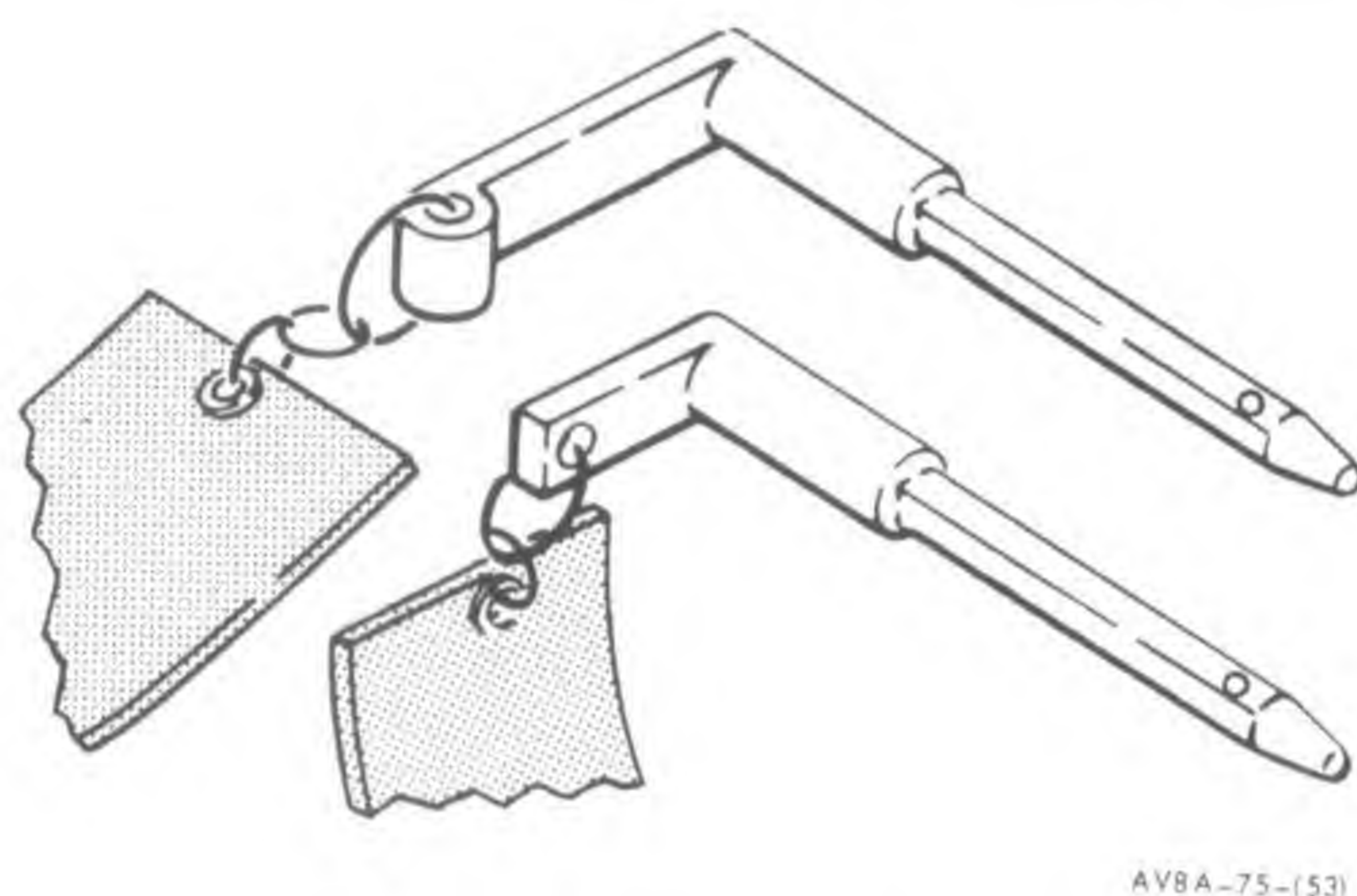


Figure 2-84. LAU-7 Series Safety Pin

2-121. The Tester, Guided Missile, Infrared Source TTU-304/E (figure 2-83) will be used to perform tone check on AIM-9D/G/H missile. The tester will provide infrared source to verify the operability of the guidance control group (GCG).

**2-122. SAFETY AND PROTECTIVE DEVICES AND SPECIAL TOOLS.**

2-123. These are used to safe, protect, and adjust/set weapons/stores and components. These items consist of the following:



Figure 2-85. AIM-9B Dome Cover

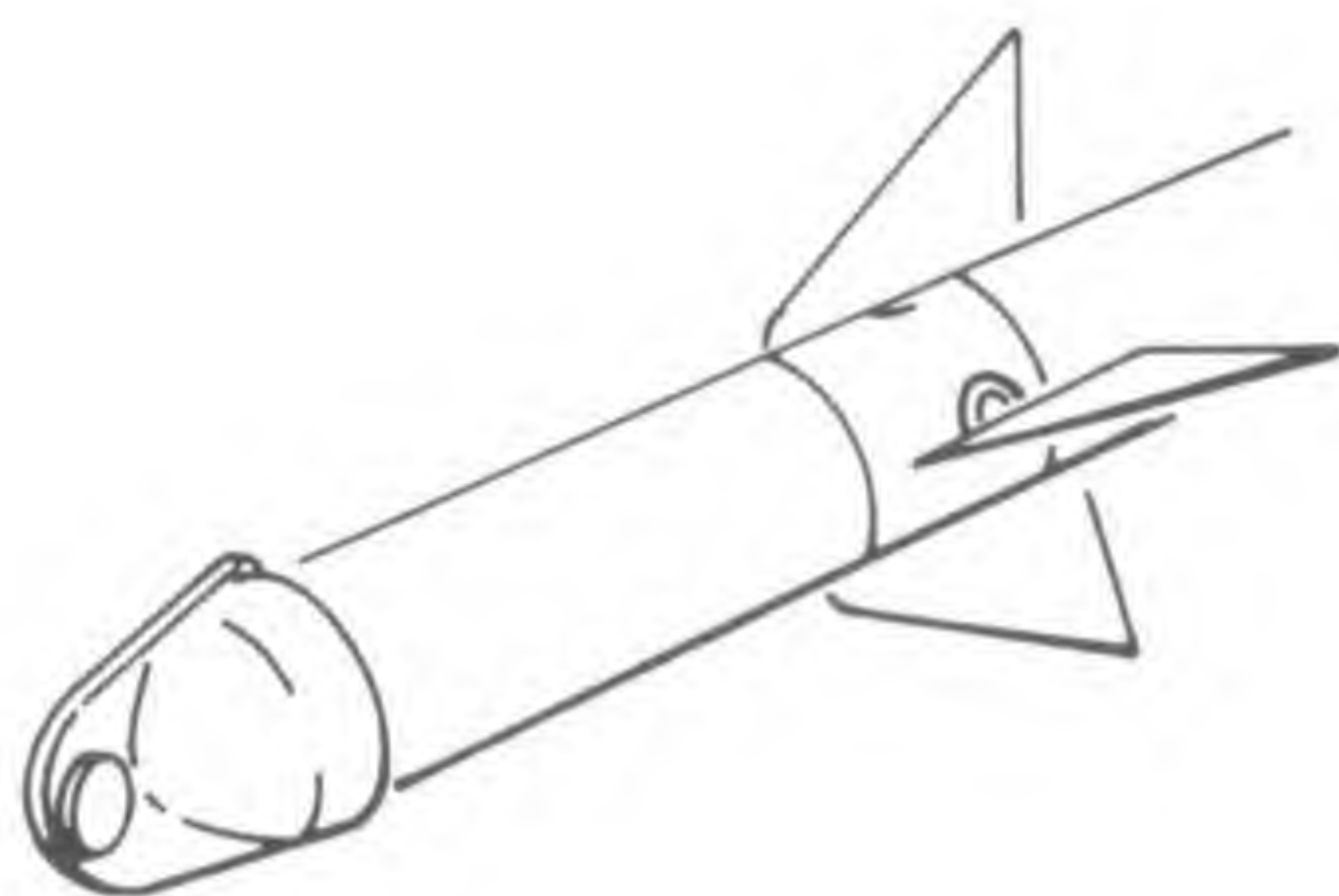
**NOTE**

The following special tools does not preclude the use of other authorized special tools.

2-124. The LAU-7 series safety pin (BUORD 58A164C165) (figure 2-84) is used to prevent ground firing of the LAU-7 missile launcher. When inserted, the pin interrupts the firing circuit.

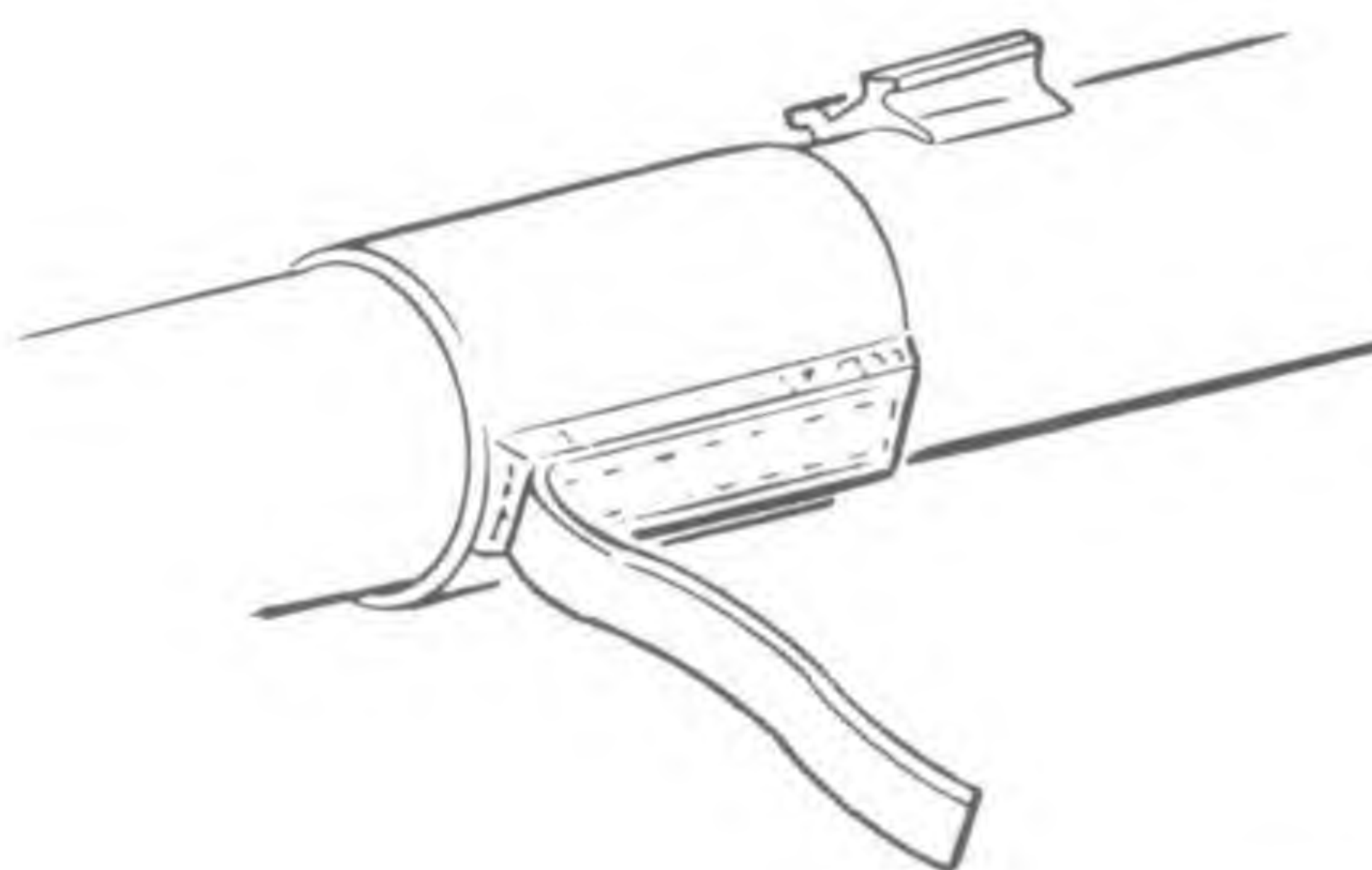
2-125. The dome cover (AIM-9B) (figure 2-85) is used to protect the AIM-9B missile dome from physical damage.





AV8A-75-(51)

Figure 2-86. AIM-9D/G/H Dome Cover



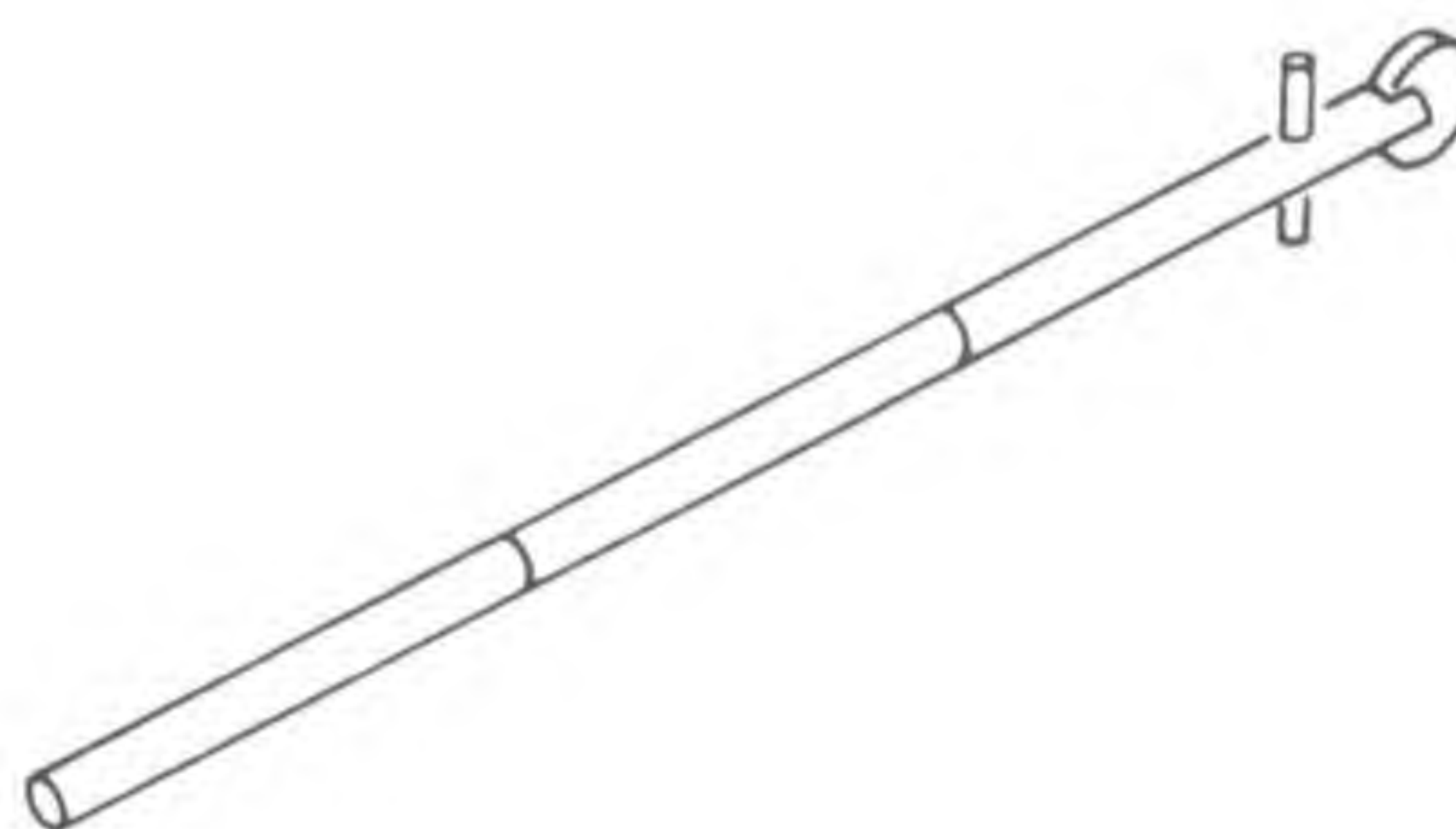
AV8A-75-(97)

Figure 2-87. AIM-9B Fuze Cover



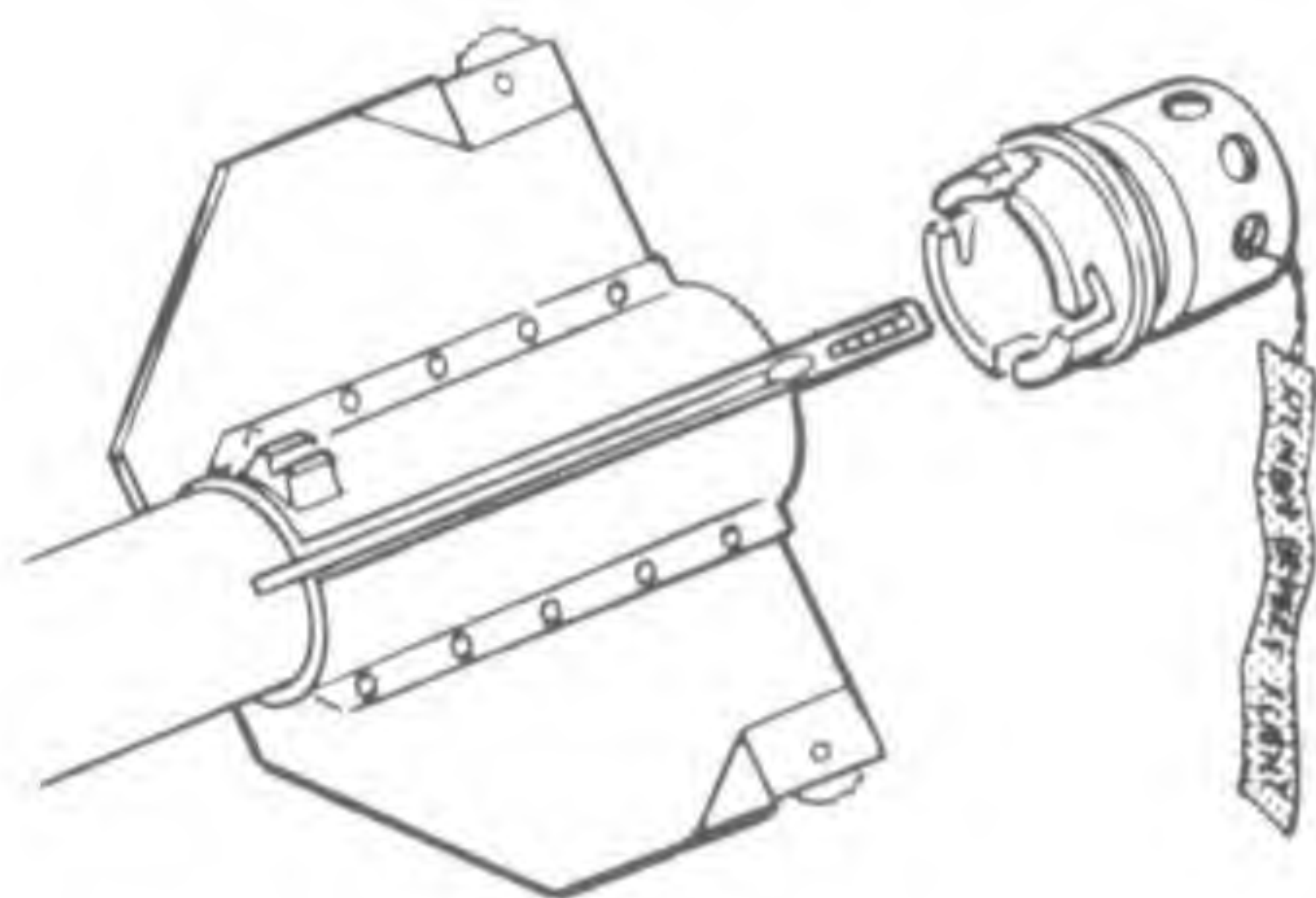
AV8A-75-(96)

Figure 2-88. MK 24 Flare Fuze Setting Tool



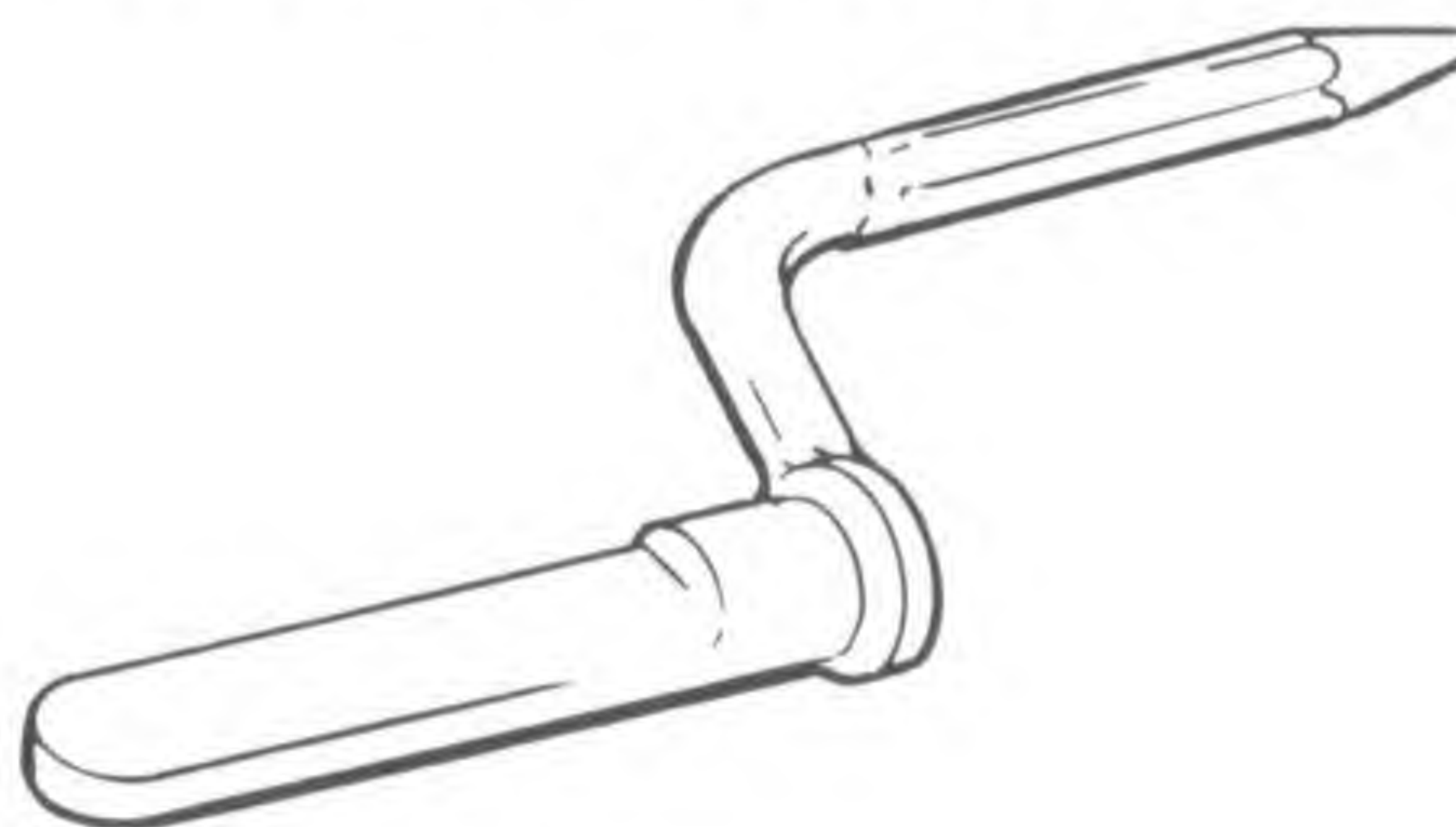
AV8A-75-(95)

Figure 2-89. SUU-40/44 Flare/Breech Tool



AV8A-75-(94)

Figure 2-90. AIM-9B Nonpropulsion Attachment



AV8A-75-(93)

Figure 2-91. PMBR Operating Lever

2-126. The dome cover (AIM-9D/G/H), (figure 2-86) is used to protect the missile from physical damage. On AIM-9D/G/H missile the dome cover serves as a gyro cager when electrical power is not applied to the missile.

2-127. The fuze cover (figure 2-87) is used to protect the fuze window on the AIM-9B missile from moisture and physical damage.

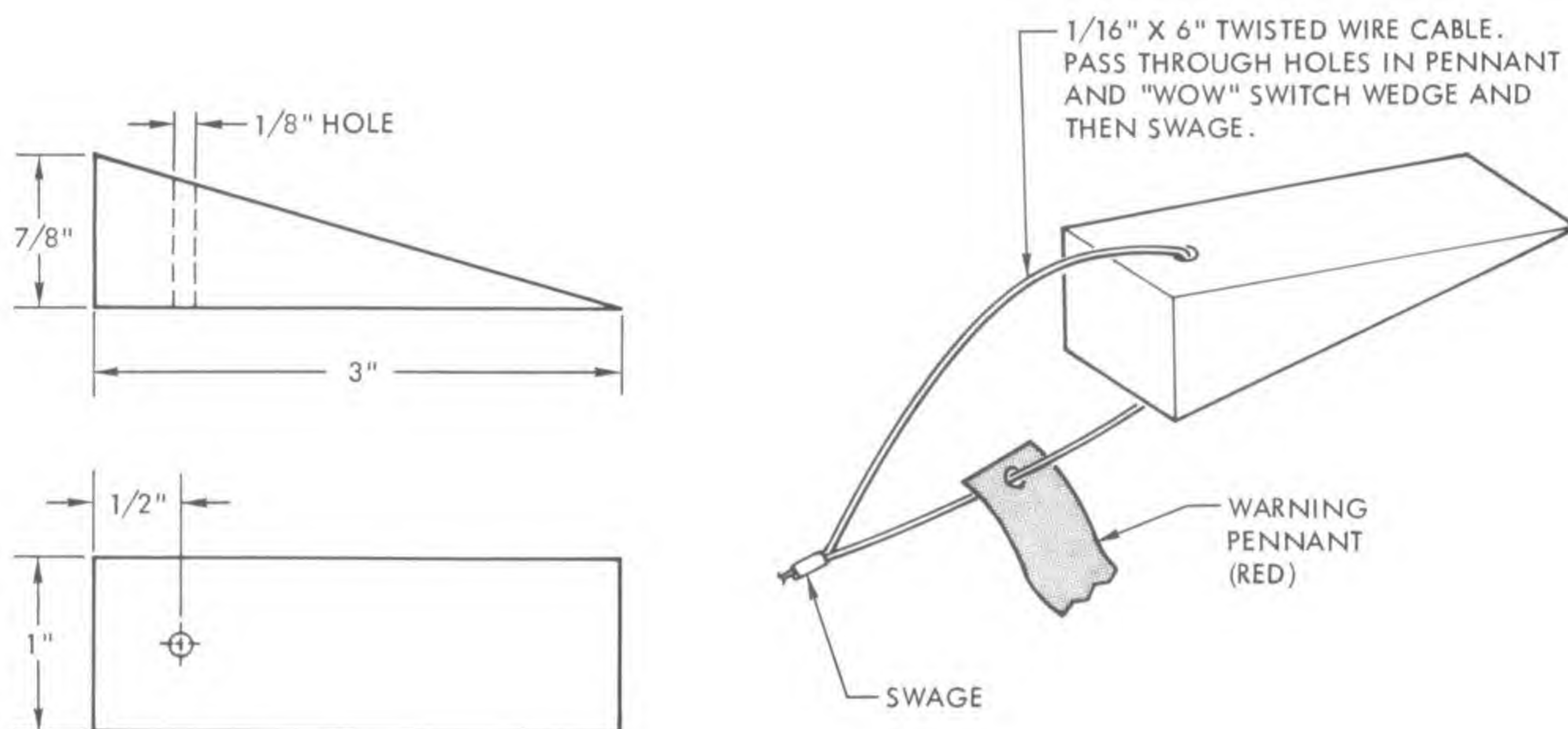
2-128. The fuze setting tool (figure 2-88) is used to set MK 24 flare ejection dial during loading operations and to restore the ejection dial to a safe condition in the case of an abort or unfired flare.

2-129. The flare unloading/breech removal tool (P/N 67A312C1) (figure 2-89) provides a means of pushing flares from the tubes of the SUU-40/44 flare dispenser, and removing the breech from the dispenser forward bulkhead.

2-130. The nonpropulsion attachment (figure 2-90) is used with the AIM-9B guided missile to prevent forward movement of the missile in case of accidental motor firing.

2-131. The PMBR operating lever (64A81C7-1) (figure 2-91) is used to cock and release, lock the individual hooks and adjust the sway braces at each station on the A/A 37B-3 practice multiple bomb rack.





**NOTE**  
WEDGE FABRICATED FROM ALUMINUM

AV8A-75-(92)

Figure 2-92. Weight on Wheels Actuator Wedge



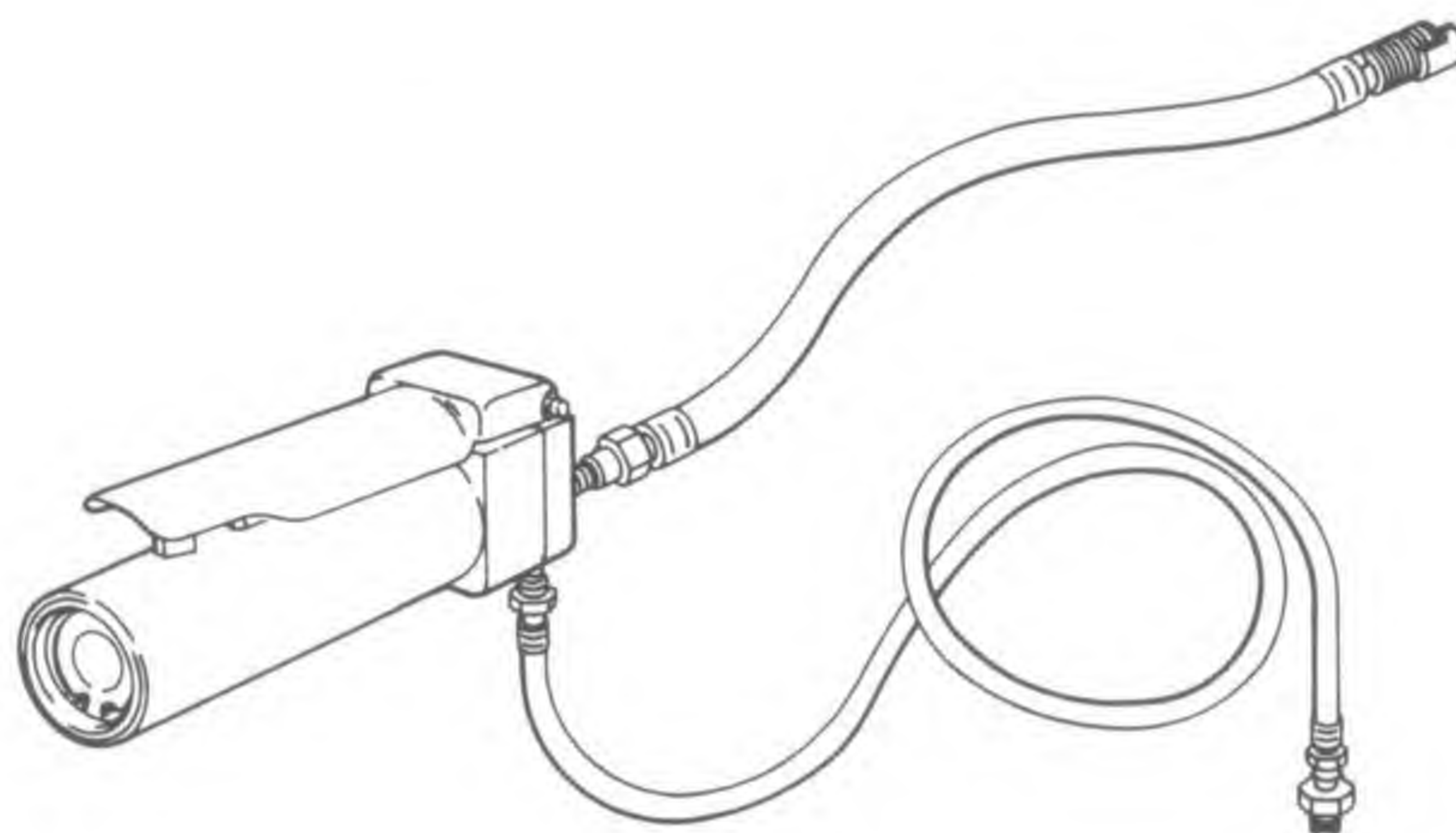
AV8A-75-(150)

Figure 2-93. Rockeye Nose Cover

2-132. The weight on wheels actuator wedge (figure 2-92) is used to engage weight on wheel (WOW) switch, located on main landing gear, in order to perform ground maintenance checks of aircraft weapon systems. The weight on wheels wedge is locally manufactured.

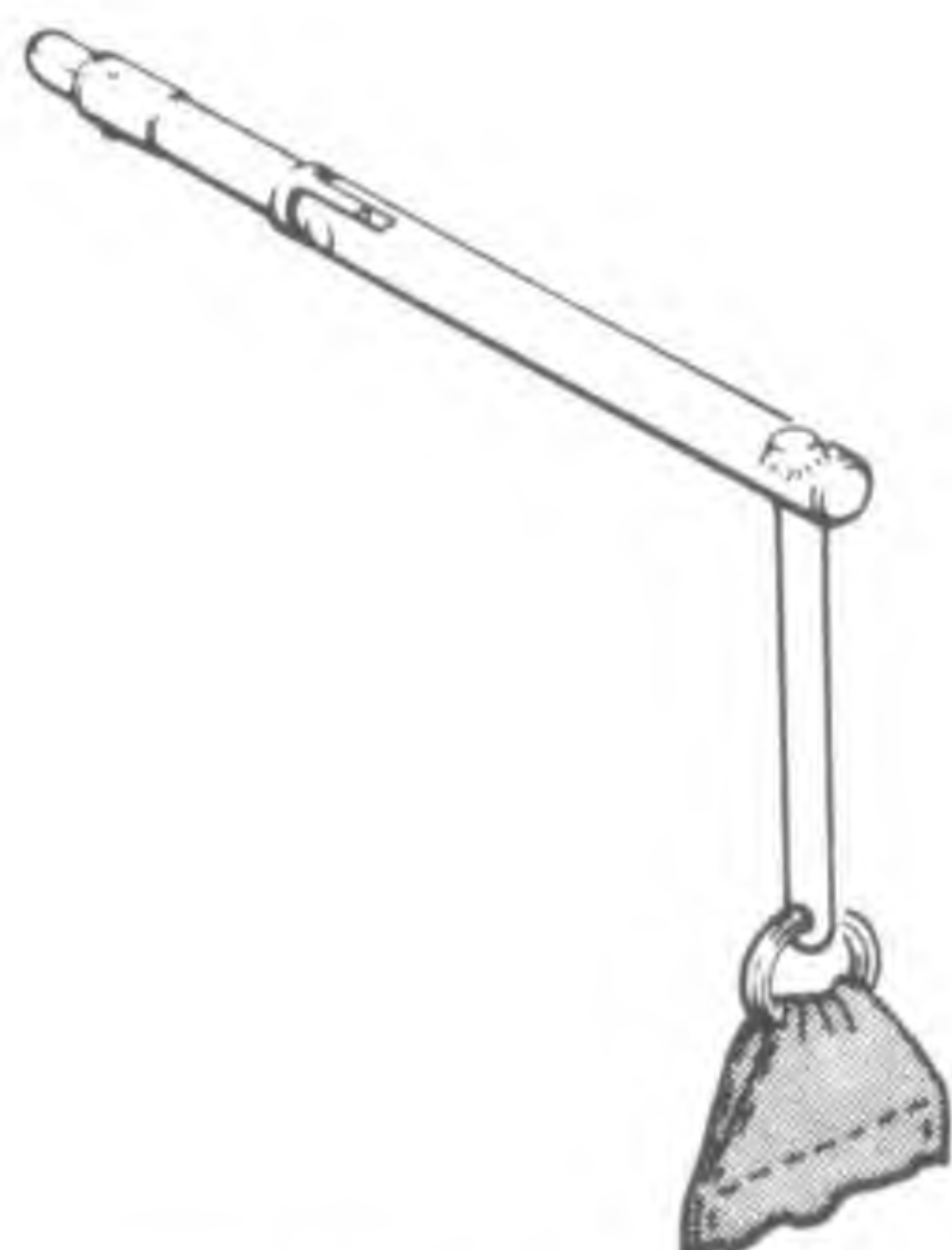
2-133. The Rockeye nose protective cover (figure 2-93) is installed during shipping and ground handling to protect the MK 339 MOD 0 fuze impeller.





AV8A-75-(164)

Figure 2-94. Pneumatic Cocking Valve



AV8A-75-(162)

Figure 2-95. Ground Safety Pin and  
Manual Release Tool

2-134. The pneumatic cocking valve (figure 2-94) is used to charge the gun for arming and dearming. The cocking valve is operated by a 3000 pound air supply. The component of the cocking valve is the cocking valve, two high pressure hoses (one going to the compressor and one to the gun) and a quick release coupling.

2-135. The ground safety pin and manual release tool (figure 2-95) is inserted in the individual ejector rack unit during all ground operations to prevent inadvertent release of the weapon/store. By inserting it in the RELEASE/LOCK insert, it is a means of cocking and releasing the ejector rack unit hook for ground loading/unloading.



SECTION III  
CONFIGURATION DATA

3-1. INTRODUCTION.

3-2. This section contains data concerning the verified station loading; the aircraft configuration capabilities, and the aircraft configuration equipment together with its location. Tables list equipment to be installed and removed from the aircraft during configuration changes and the publication references required.

3-3. AIRCRAFT CONFIGURATION CONVERSION.

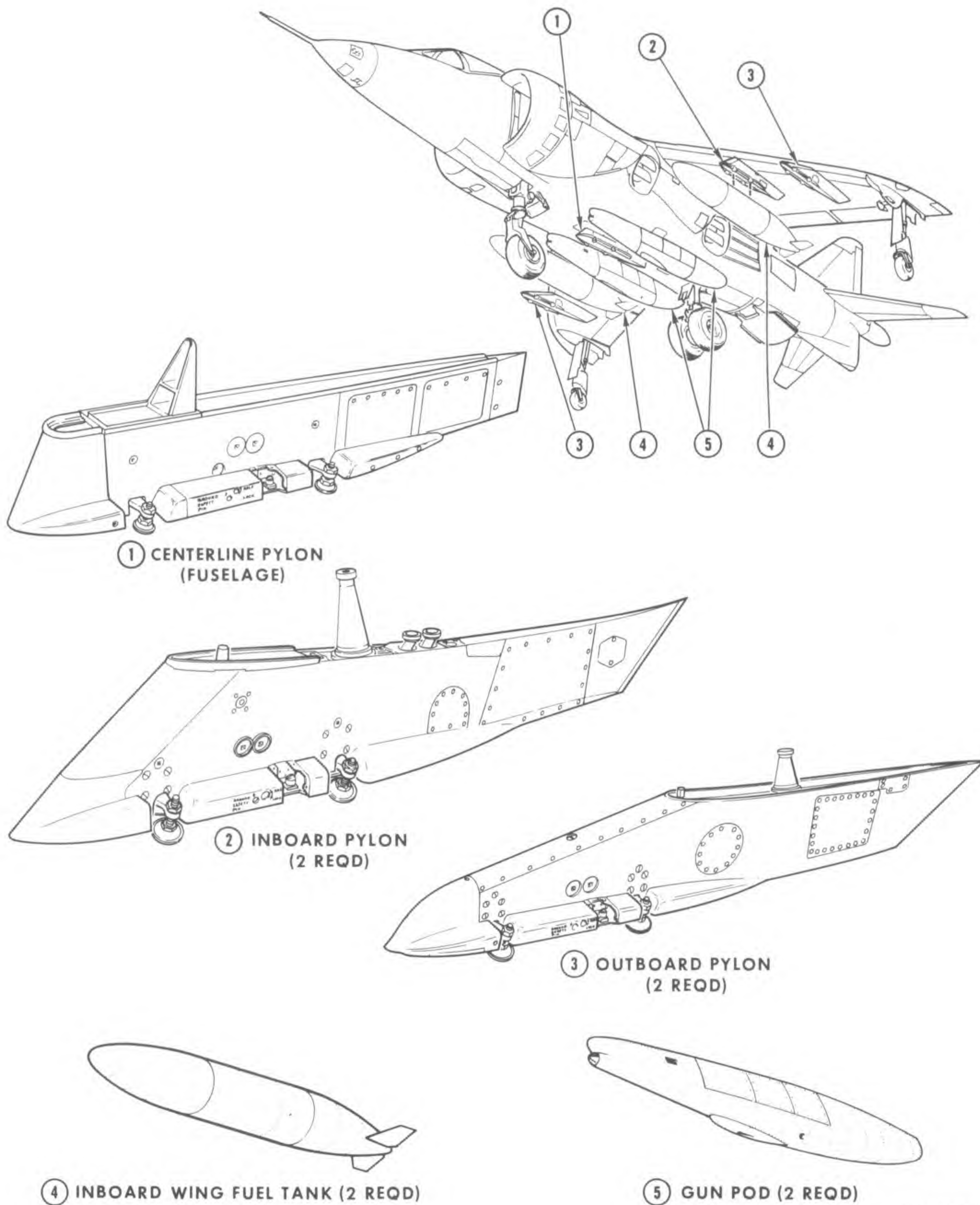
WARNING

This manual does not authorize station loading for flight. For specific authorization refer to Tactical Manual.

3-4. The basic configuration of the AV-8A aircraft consist of two outboard pylons, two inboard pylon and one fuselage pylon. Two 120 gallon fuel tanks and two gun pods (figure 3-1). Figure 3-2 lists stations configuration capabilities. The outboard pylons (station 1 and 5) are installed at all times for flight (due to exposed sidewinder wiring).

3-5. The aircraft configuration equipment illustrations (figure 3-3 through 3-12) show the equipment items required for specific configurations. Table 3-1 lists the accessories and items required for conversion from basic aircraft configuration to each aircraft configuration.





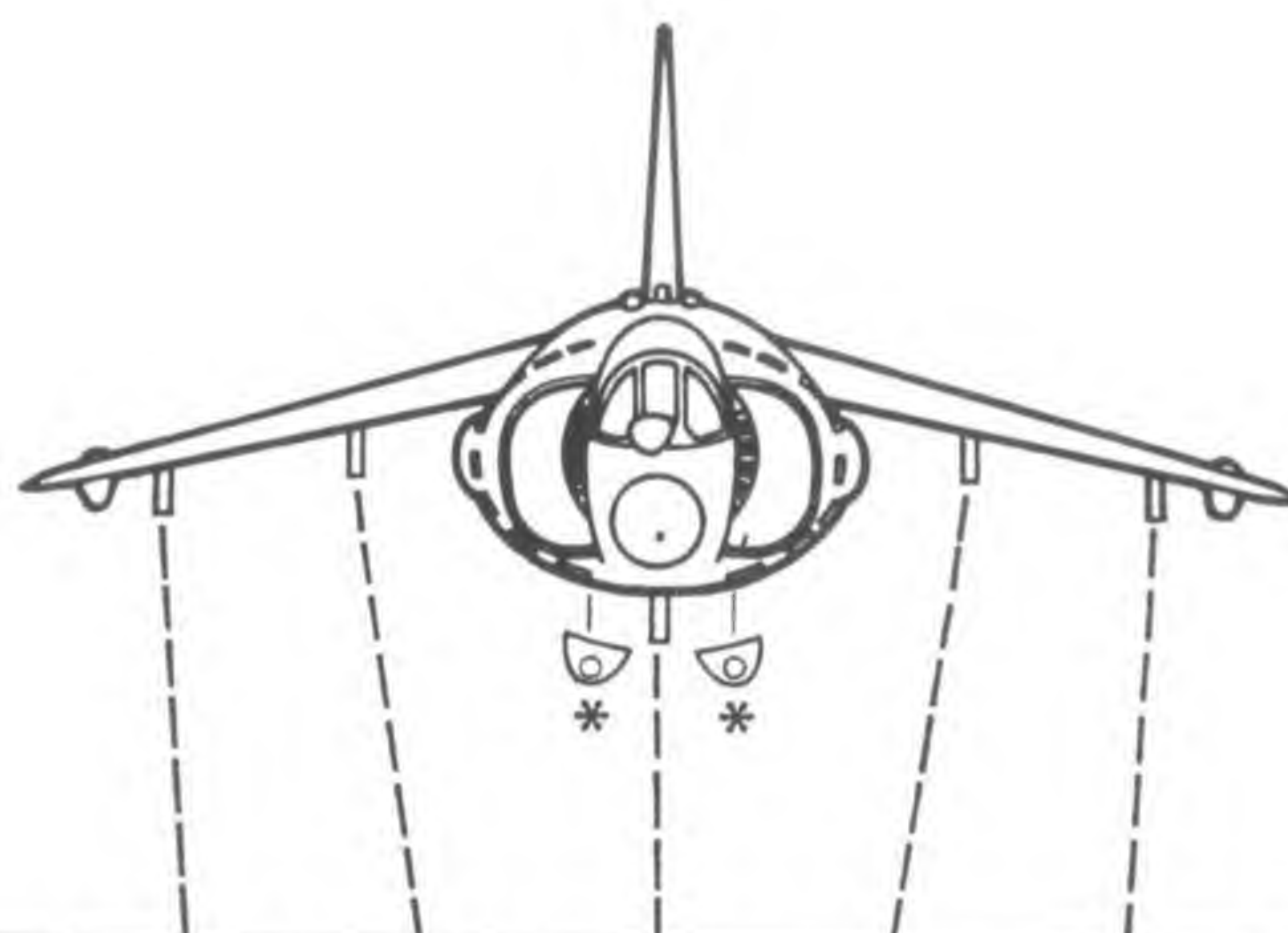
AV8A-75-(91)

Figure 3-1. Basic Aircraft Configuration



**WARNING**

THIS MANUAL DOES NOT AUTHORIZE STATION  
LOADING FOR FLIGHT. FOR SPECIFIC AUTHOR-  
IZATION, REFER TO TACTICAL MANUAL.

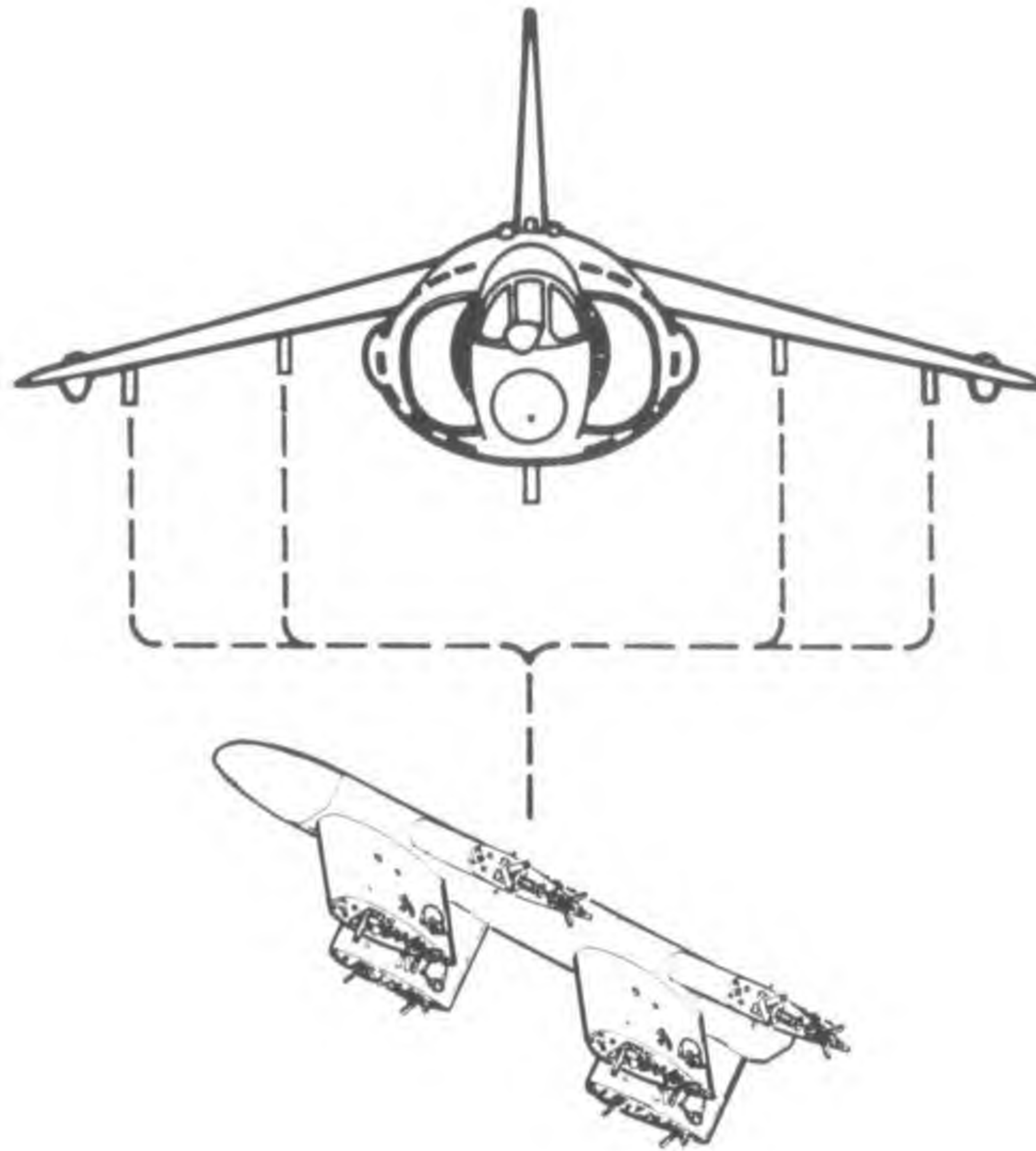


EQUIPMENT	5	4	3	2	1	REMARKS
OUTBOARD PYLON	X				X	
INBOARD PYLON		X		X		
FUSELAGE PYLON			X			
PMBR	X	X		X	X	
ADU-299A/A ADAPTER	X				X	
LAU-7 LAUNCHER	X				X	
120 GAL FUEL TANK		X		X		
* GUN PODS (30MM ADEN IN PODS)						

Figure 3-2. Station Configuration Capabilities



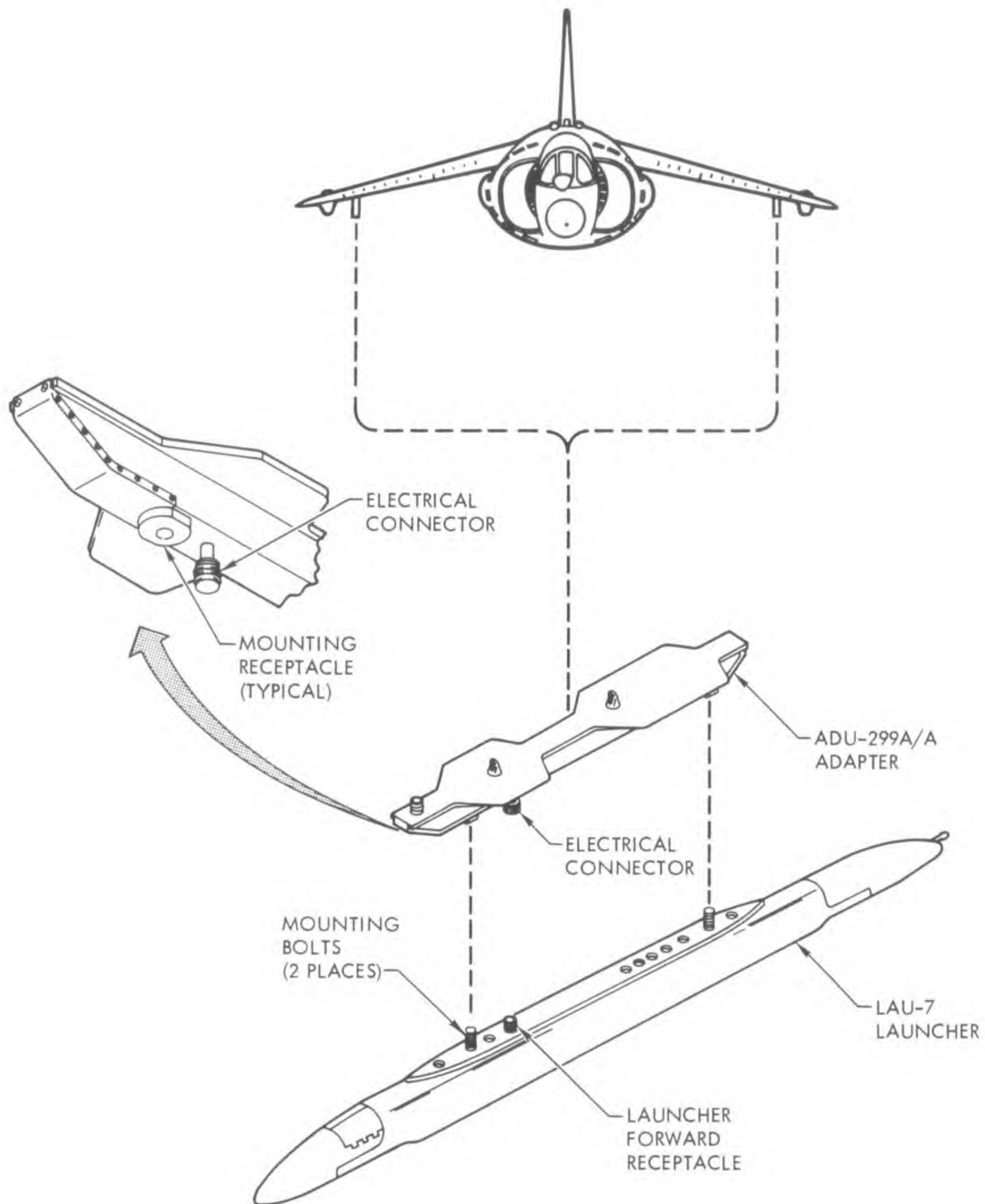
PRACTICE MULTIPLE BOMB RACK



AV8A-75-(89)

Figure 3-3. Aircraft Configuration for Practice Multiple Bomb Rack



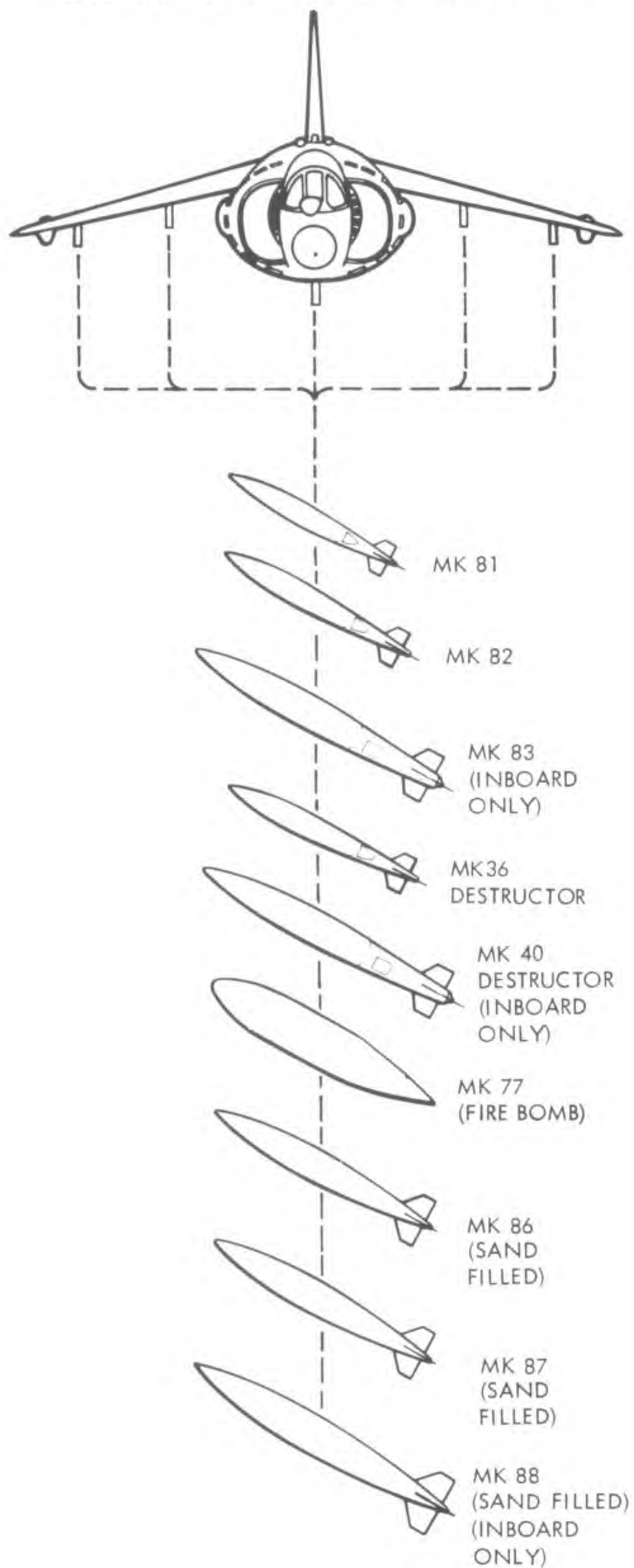


AV8A-75-(88)

Figure 3-4. Aircraft Configuration for ADU-299A/A Adapter and LAU-7 Missile Launcher



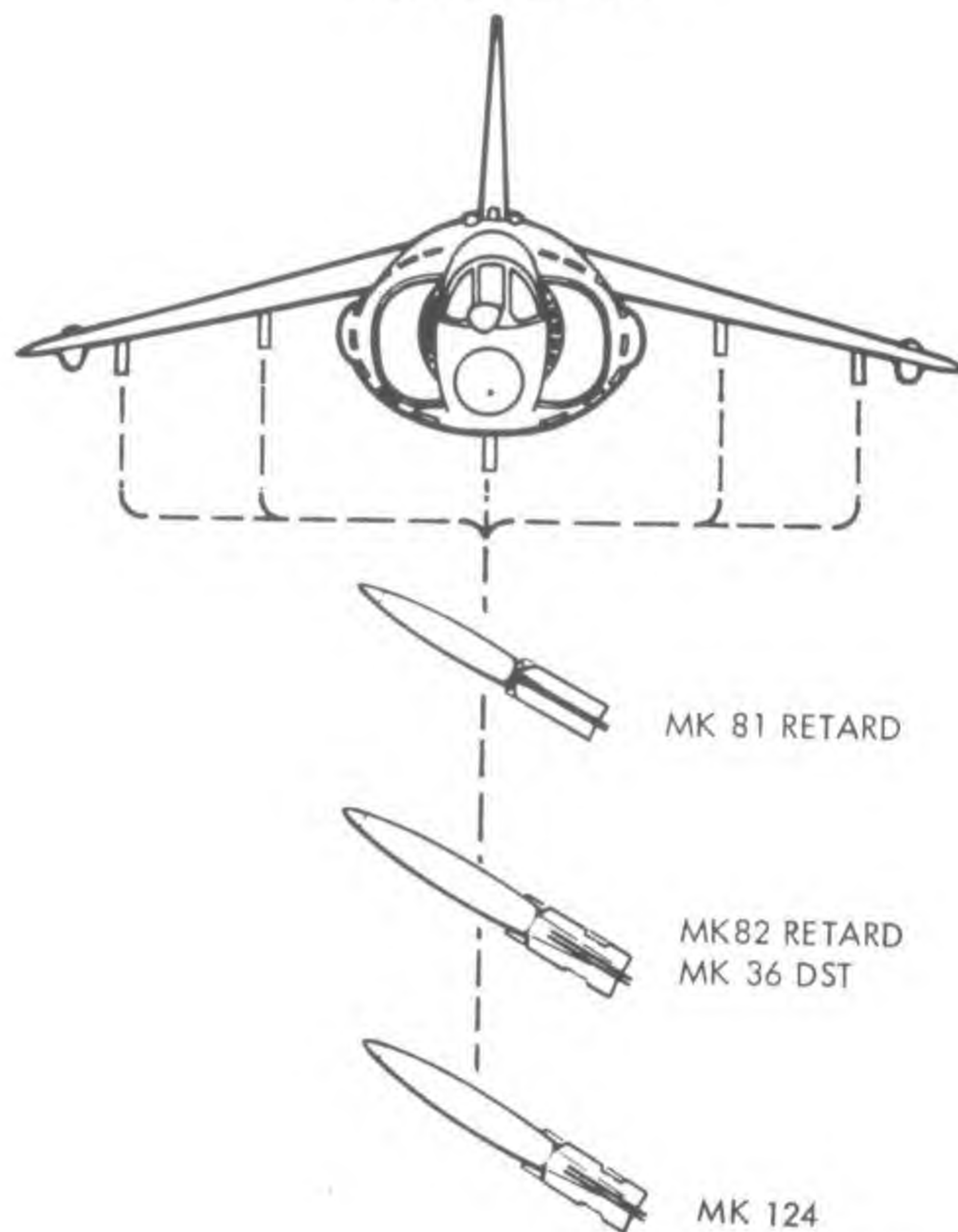
### NON-RETARD BOMBS AND FIRE BOMBS



AV8A-75-(87)

Figure 3-5. Aircraft Configuration for Non-Retard Bombs

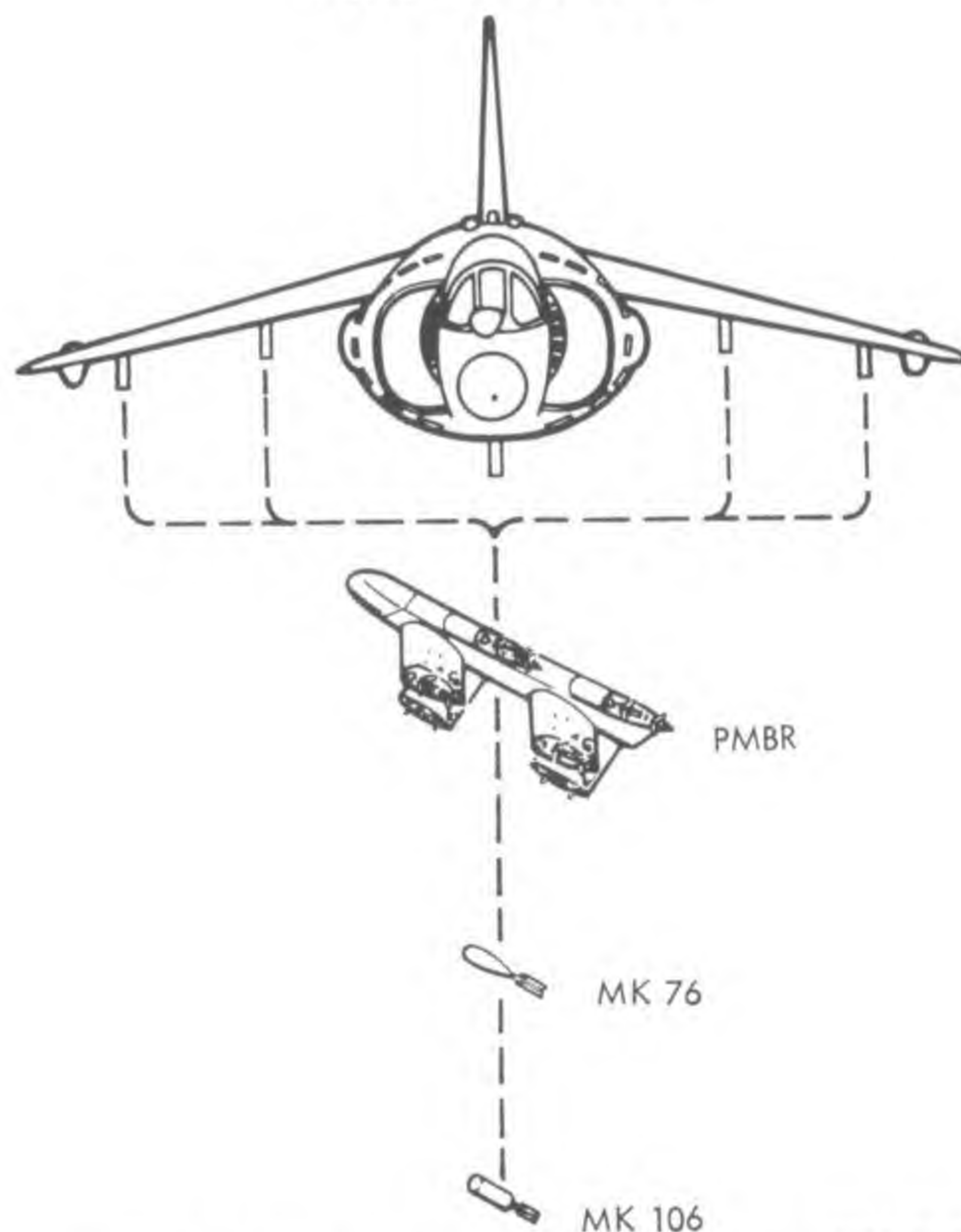
### RETARD BOMBS



AV8A-75-(86)

Figure 3-6. Aircraft Configuration for Retard Bombs

### PRACTICE BOMBS

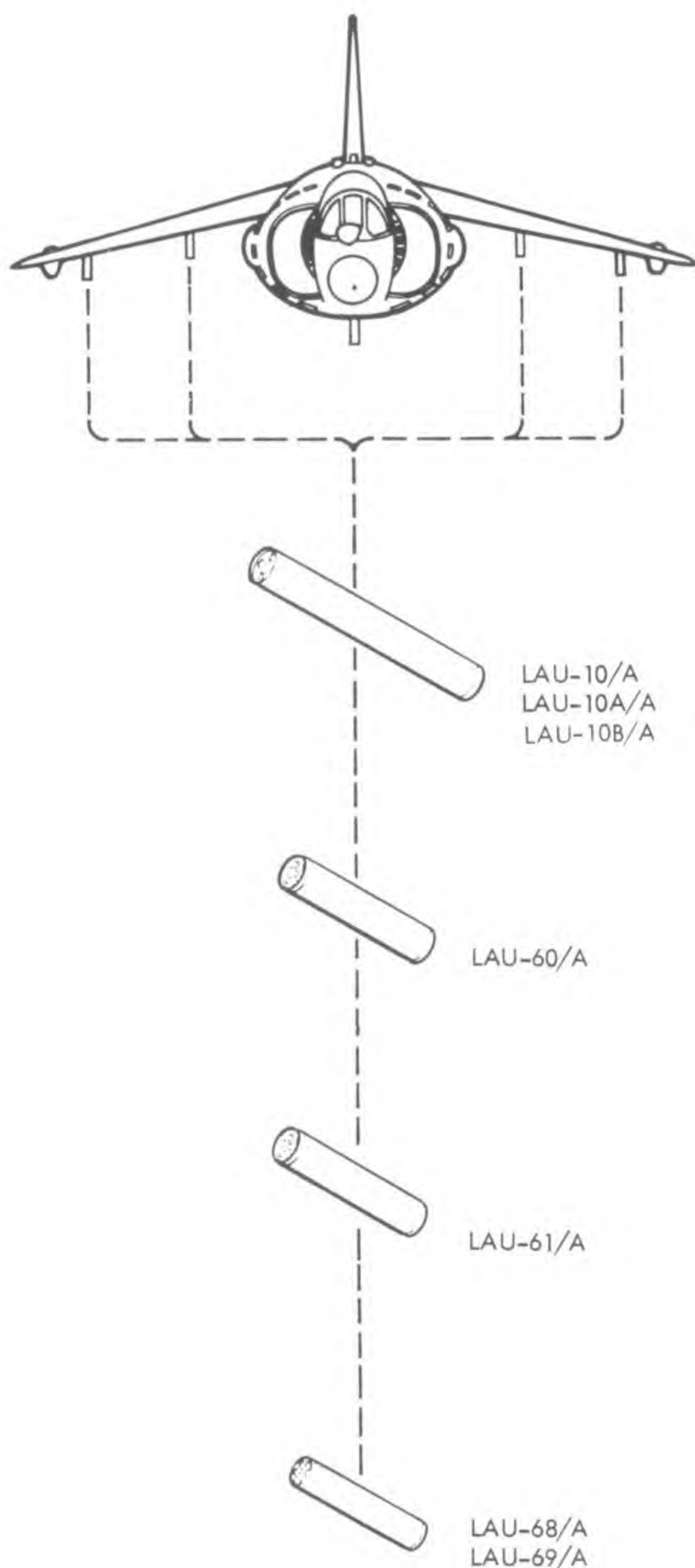


AV8A-75-(85)

Figure 3-7. Aircraft Configuration for PMBR and Practice Bombs



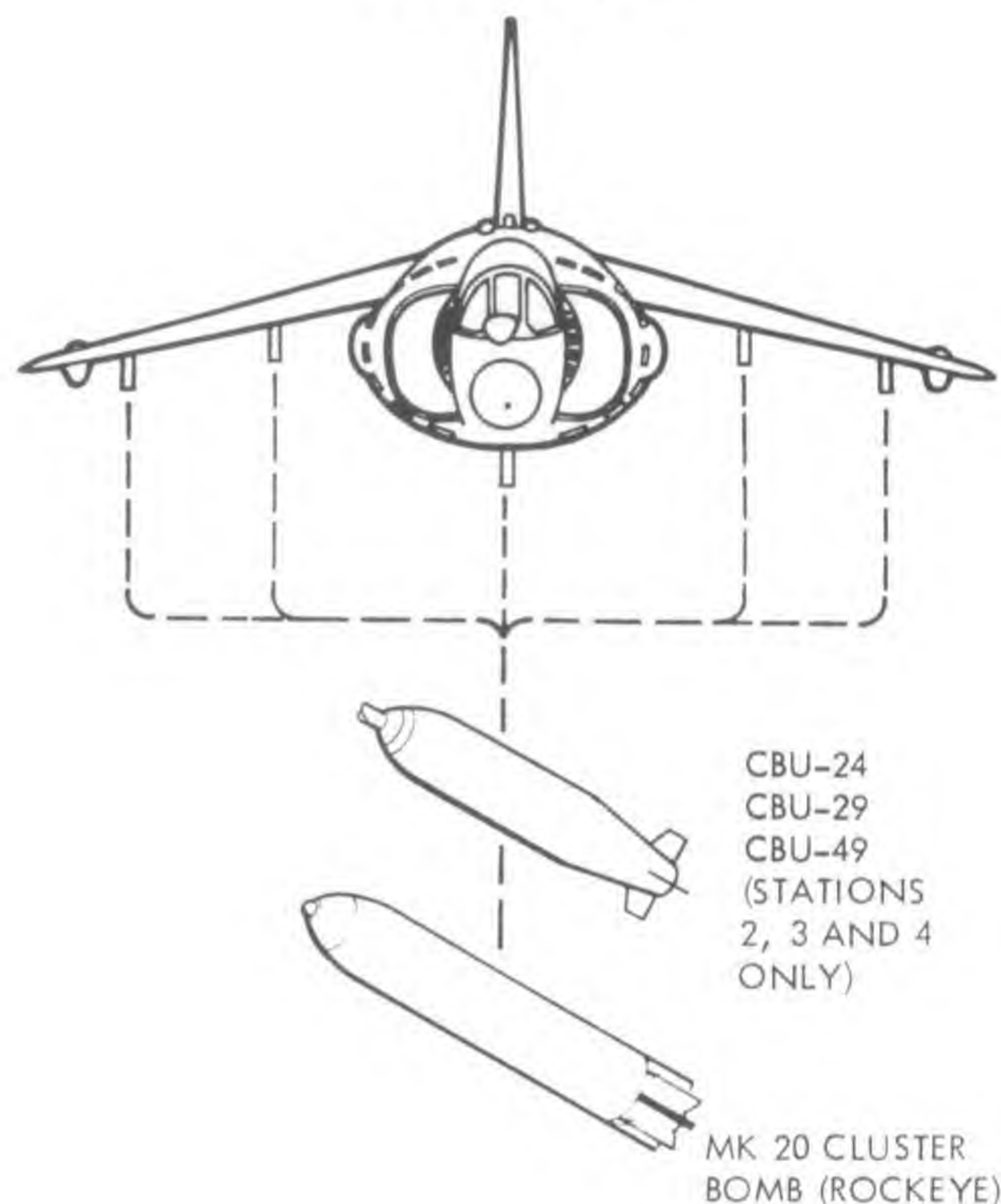
ROCKET LAUNCHERS



AV8A-75-(84)

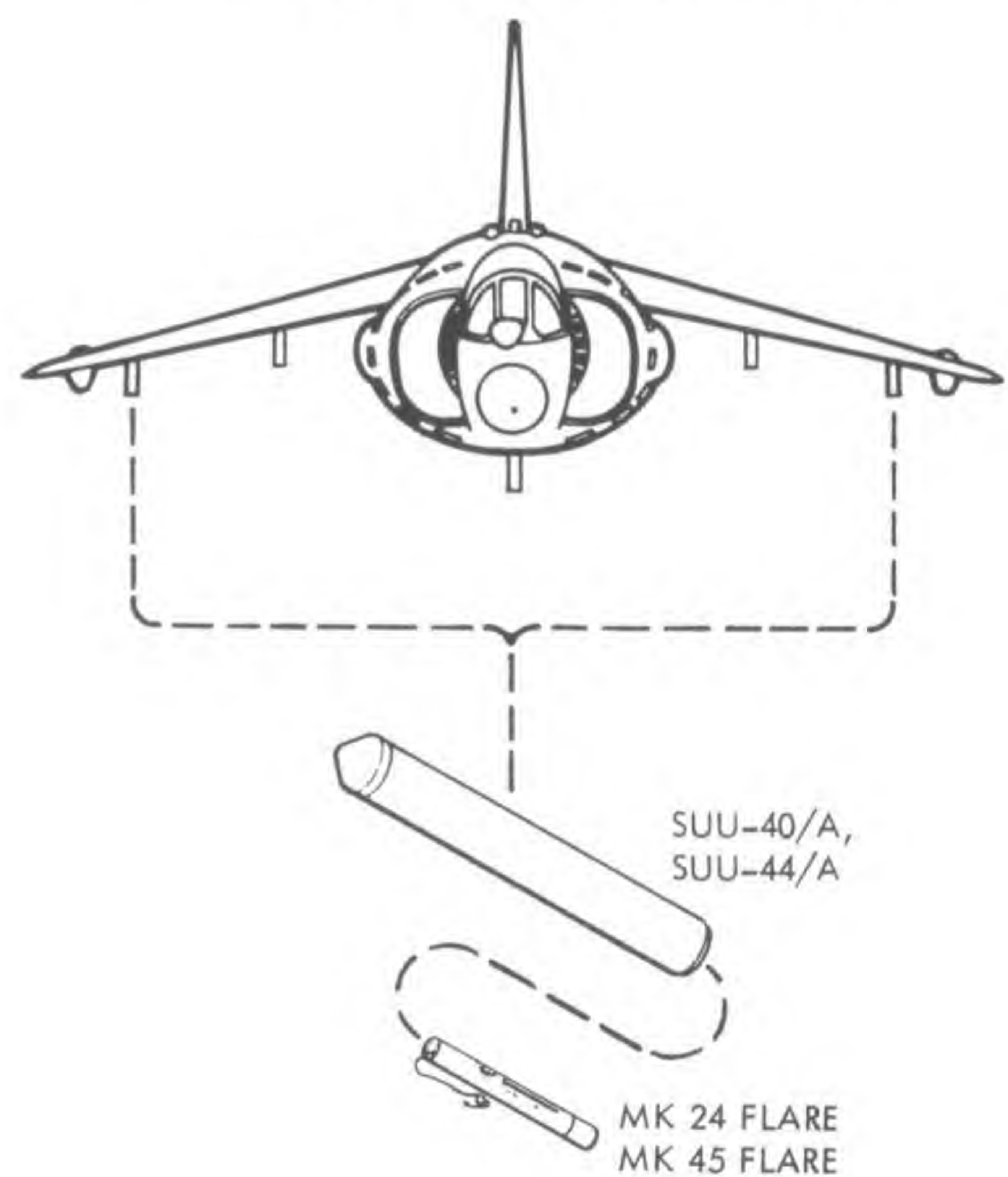
Figure 3-8. Aircraft Configuration for  
Rocket Launchers

CBU/ROCKEYE



AV8A-75-(83)

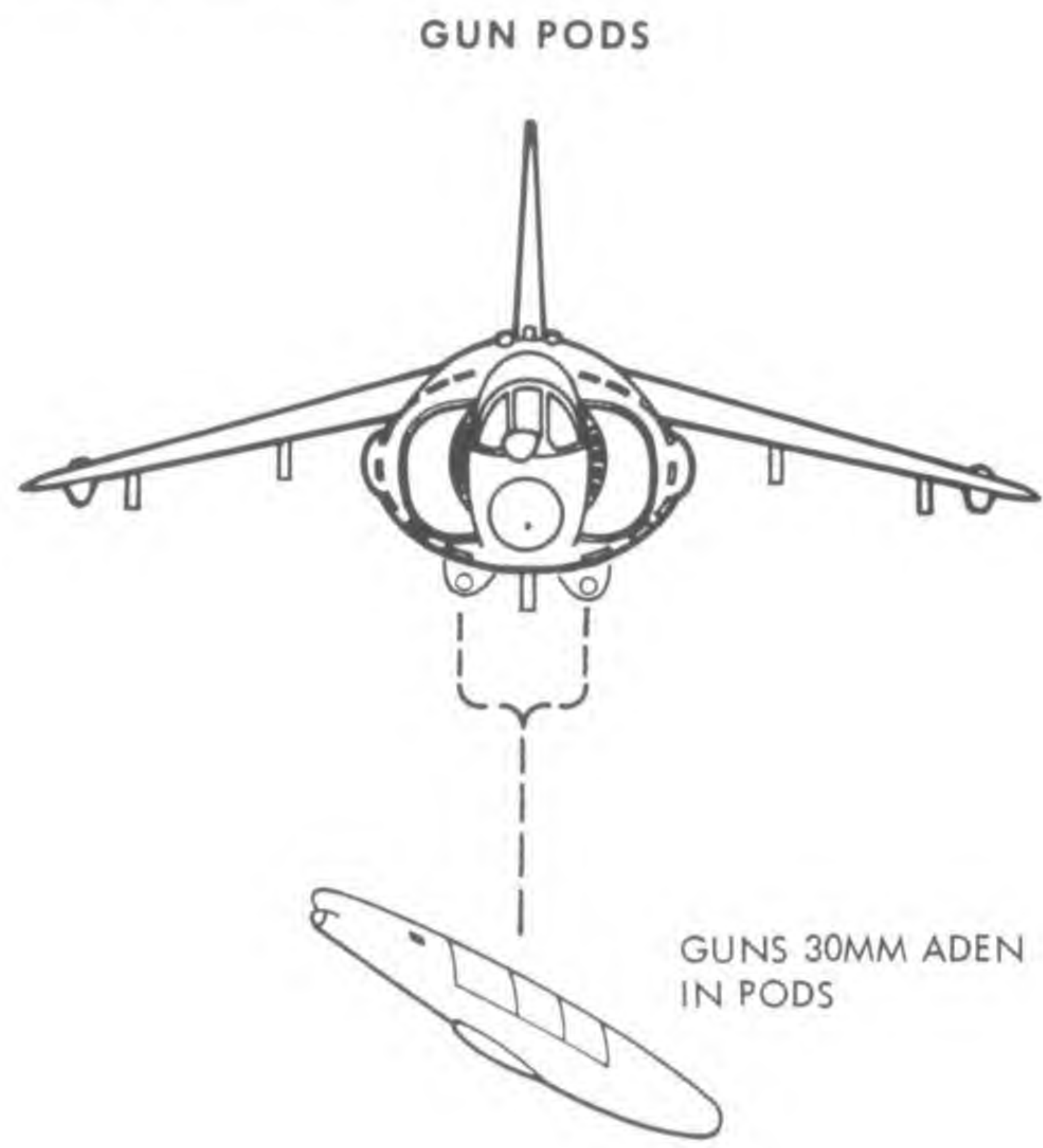
Figure 3-9. Aircraft Configuration for Cluster Bombs  
FLARES AND FLARE DISPENSER UNIT



AV8A-75-(82)

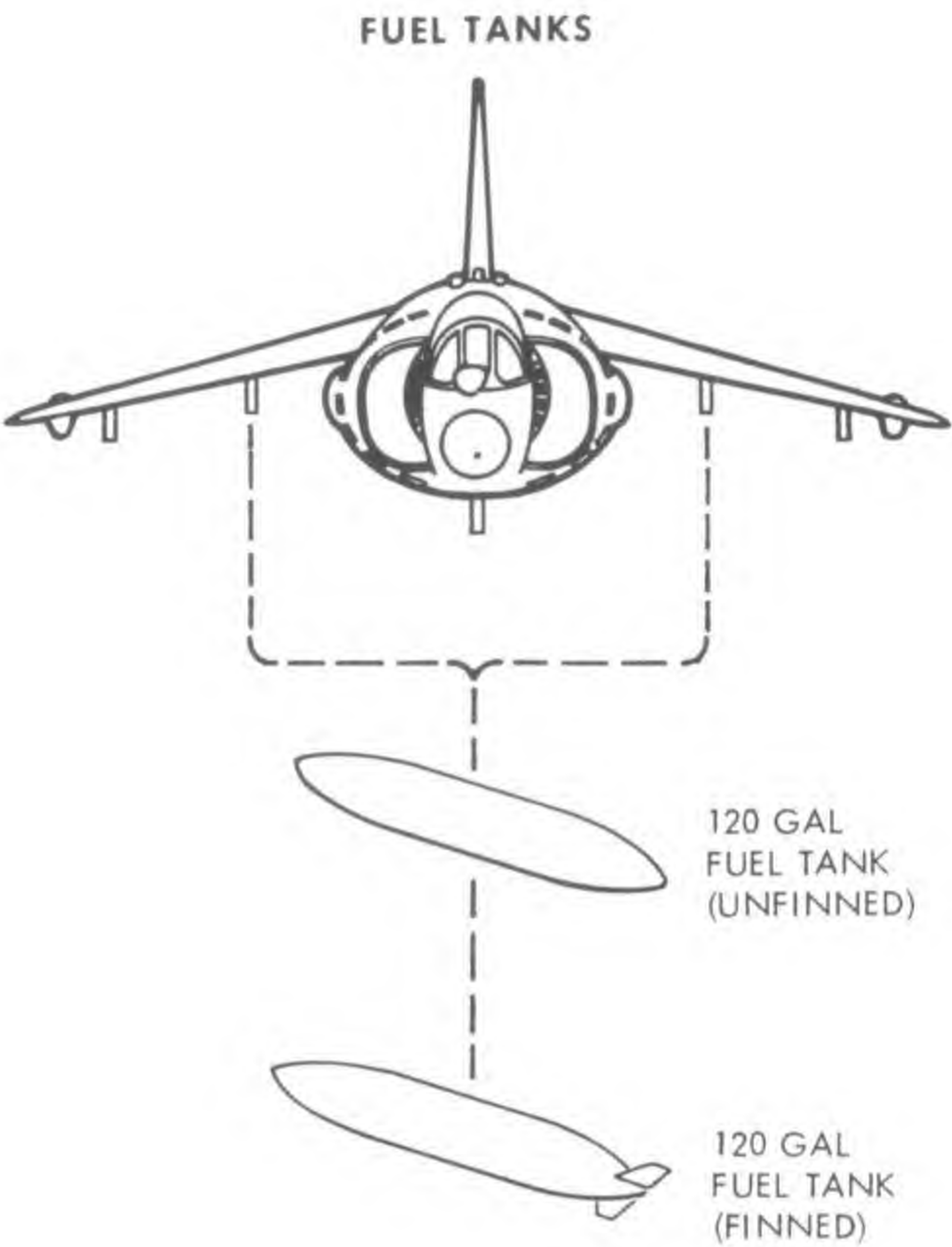
Figure 3-10. Aircraft Configuration for Flares





AV8A-75-(81)

Figure 3-11. Aircraft Configuration for Guns



AV8A-75-(80)

Figure 3-12. Aircraft Configuration for Fuel Tanks



Table 3-1. Conversion from Basic Configuration to Store

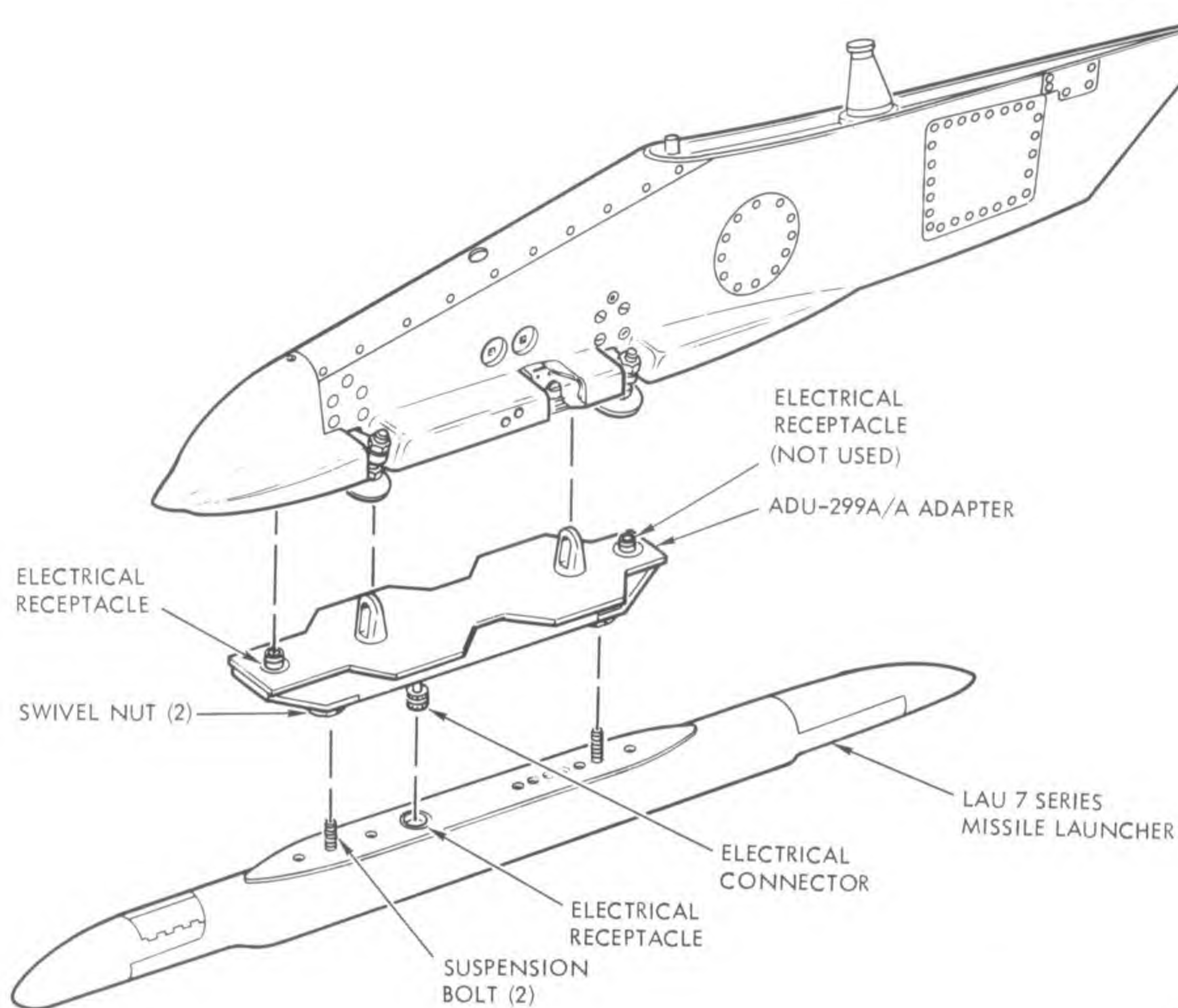
Pylon Station	Store	Equipment		Remove	Equipment/ Store Removal Paragraph	Equipment/ Store Installation Paragraph	Release And Control Paragraph	Loading Section
		Item	Part/Type Number					
1, 2, 3, 4, 5	Pylon Center- line		E284796	X	NAVAIR 101B- 0601-1G, CHAP- TER 80-20		4-16 (Jettison)	
	Pylon Inboard		E290714	X			4-20 (Bomb Release Single Station)	
	Pylon Outboard		E290727	X			4-24 (Bomb Release Multiple Station) 4-32 (Rocket Firing)	
1, 2, 4, 5	MK 76 MK 106 Practice Bombs	PMBR	A/A 37B-3	X	3-13	3-12	4-28	XIII
1, 2, 3, 4, 5	GP Bomb MK 81, MK 82, MK 86 MK 87, MK 88 Non-Re- tard MK 36 Destructor	Pylon	E284796 E290714 E290727	X	6-22	6-9	4-20 4-24	VI
2, 4	GP Bomb MK 83 Non-Re- tard MK 40 Destructor	Pylon	E290714	X	6-22	6-9	4-20 4-24	VI
1, 2, 3, 4, 5	GP Bomb MK 81 Retard	Pylon	E284796 E290714 E290727	X	7-22	7-9	4-20 4-24	VII
1, 2, 3, 4, 5	GP Bomb MK 82 Re- tard MK 36 Destructor	Pylon	E284796 E290714 E290727	X	7-22	7-9	4-20 4-24	VII
1, 2, 3, 4, 5	Practice Bomb MK 124 Retard	Pylon	E284796 E290714 E290727	X	7-22	7-9	4-20 4-24	VII



Table 3-1. Conversion from Basic Configuration to Store (Continued)

Pylon Station	Store	Equipment		Remove	Install	Equipment/ Store Removal Paragraph	Equipment/ Store Installation Paragraph	Release And Control Paragraph	Loading Section
		Item	Part/Type Number						
1, 2, 3, 4, 5	Fire Bombs MK 77 MOD 2/4	Pylon	E284796 E290714 E290727		X	8-22	8-9	4-20 4-24	VIII
2, 3, 4	CBU-24, 29, 49	Pylon	E284796 E290714		X	12-26	12-13	4-20 4-20	XII
1, 2, 3, 4, 5	MK 20 MOD 2/3	Pylon	E284796 E290714 E290727		X	12-26	12-13	4-20 4-24	XII
1, 2, 4, 5	Rockets LAU-10 LAU-60 LAU-61 LAU-68 LAU-69	Pylon	E290714 E290727		X	11-24	11-11	4-32	XI
1, 5	Dispenser Flares SUU-40 SUU-44	Pylon	E290727		X	9-22	9-9	4-32	IX
1, 5	AIM-9	PYLON ADU299A/A	E290727	X	X	NAVAIR 101B-0601-1G, CHAPTER 80-20	3-9		III & X
		LAU-7	55A164D 863 or 58A164H	X	X	3-10	3-8	4-40	
		Sidewinder Missile Single Launcher Cable	SW3A (Port) SW4A (Stbd)		X	3-11 10-24	3-9 10-9		
Fuselage	30MM Aden Gun Pod & Gun 30MM Ammuni- tion			X	X	NAVAIR 101B-0601-1G, CHAPTER 82-00			
				X	X	NAVAIR 101B-0601-1G, CHAPTER 82-10	14-11	4-36	XIV
2, 4	Fuel Tanks 120 gal.	Pylon	E209714	X	X	15-21	15-9	4-16 4-20	XV





AVBA-75-(79)

Figure 3-13. LAU-7 Missile Launcher Installation

### 3-6. INSTALLATION AND REMOVAL OF COMPONENTS.

3-7. The following procedures provide for installation and removal of accessory equipment required for carriage of the weapons and stores. For installation and removal of outboard pylons, inboard pylons, fuselage pylon and gun pods, refer to table 3-2 for reference to applicable publications.

Table 3-2. Nonjettisonable Equipment Removal and Installation Reference

ITEM	REFERENCES
Outboard Pylons Inboard Pylon Fuselage Pylon Ejector Release Unit	NAVAIR 101B-0601-1G Chapter 80-20
Gun Pod	NAVAIR 101B-0601-1G Chapter 82-00
Gun, ADEN, 30MM	NAVAIR 101B-0601-1G Chapter 82-10

### 3-8. LAU-7 MISSILE LAUNCHER INSTALLATION. Install launcher and adapter as follows:

1. Install the LAU-7 series missile launcher on the ADU-299A/A missile launcher adapter perform the following:
  - a. Install ADU-299A/A adapter on suspension bolts of the LAU-7 missile launcher (figure 3-13).
  - b. Attach ADU-299A/A electrical connector to the LAU-7 electrical receptacle.
  - c. Tighten ADU-299A/A swivel nuts.
2. Check pylon for the following:
  - a. Breech caps and cartridges removed.
  - b. Ground safety pin/manual release tool installed in cocking insert.
  - c. Sway brace adjusted and jam nut positioned below sway brace arm.
  - d. All ejector rack unit hooks are open.



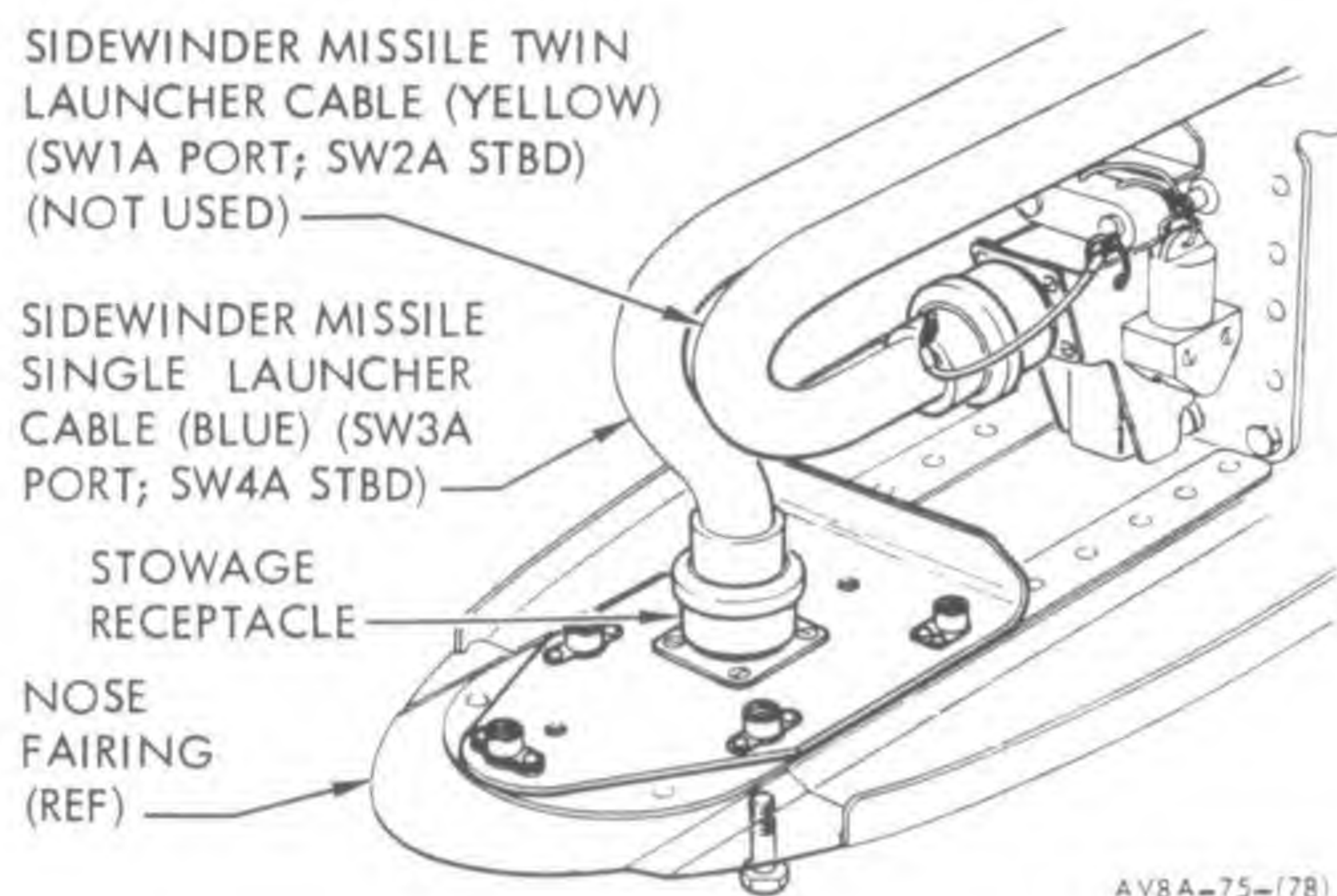


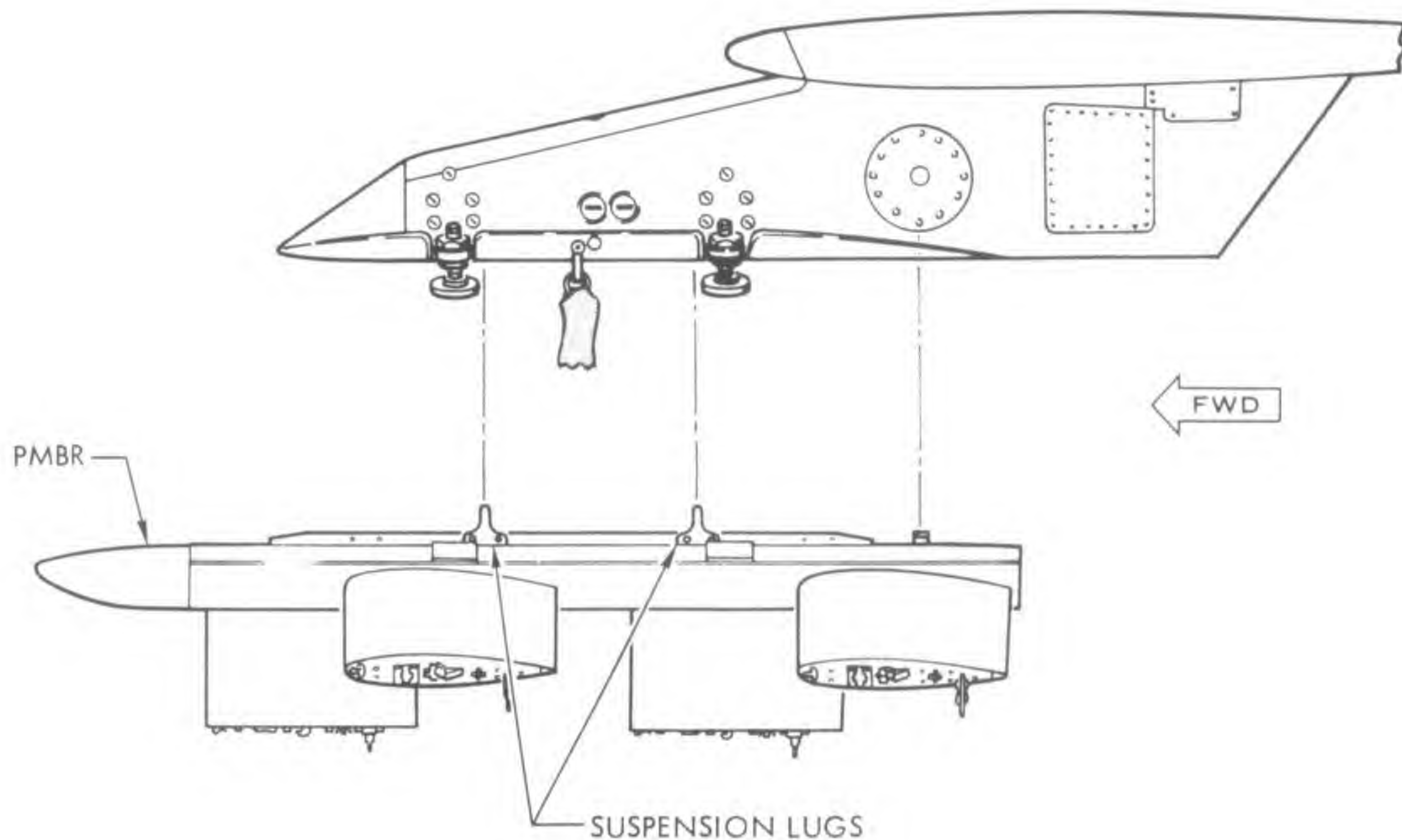
Figure 3-14. Sidewinder Missile Single Launcher Cable

- e. Remove nose fairing from pylon.
- f. Disconnect Sidewinder missile single launcher cable SW3A (PORT) SW4A (STBD) color blue from the stowage receptacle in nose of pylon. (figure 3-14)
3. Using available authorized loading equipment, raise the adapter and launcher until adapter lugs are aligned with ejector rack unit.
4. Latch ejector rack unit hooks.
5. Visually inspect ejector rack unit indicates locked. Operating arm not visible in ground safety pin hole.
6. Gently shake adapter to ensure adapter and launcher is supported by ejector rack unit hooks.
7. Install ejector rack unit safety pin.
8. Connect Sidewinder missile single launcher cable connector (SW3A PORT or SW4A STBD) to the ADU-299A/A forward electrical receptacle.
9. Adjust sway brace so adapter is centered on ejector rack unit. Tighten sway braces to 84 inch-pounds. Tighten jam nuts.
10. Install nose fairing on pylon.
11. Repeat steps 1 through 10 for each station to be loaded.

3-9. LAU-7 MISSILE LAUNCHER REMOVAL. Remove launcher as follows:

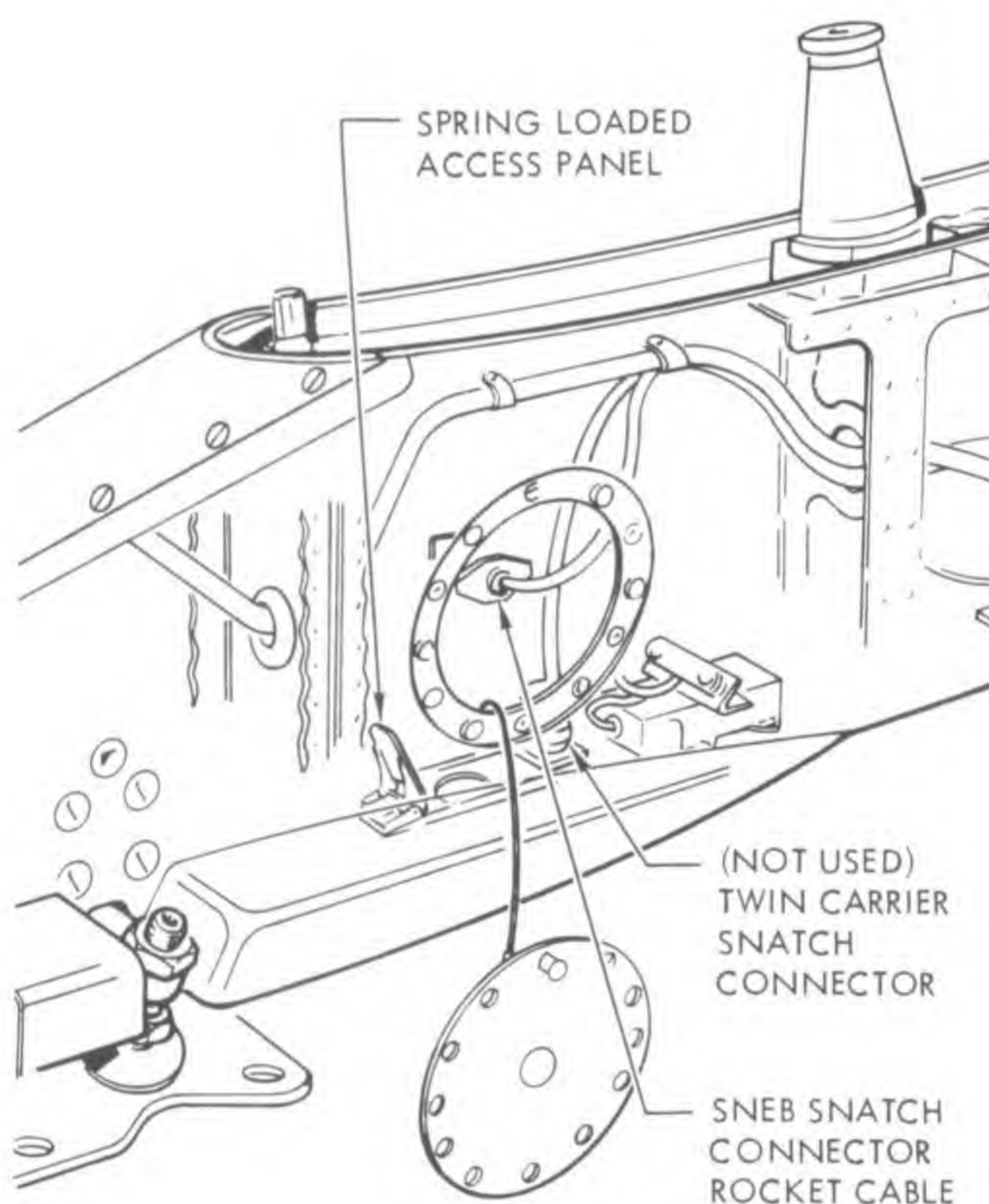
1. Check outboard pylon for the following:
    - a. Breech caps and cartridges removed.
    - b. Ground safety pin/manual release tool installed in cocking insert.
    - c. Loosen ejector rack unit sway braces.
    - d. Remove nose fairing from pylon.
  2. Disconnect Sidewinder missile single launcher cable connector from adapter forward electrical receptacle. Stow the cable (figure 3-14).
  3. Support the ADU-299A/A adapter and launcher and open ejector rack unit hooks.
  4. Remove adapter and launcher from under aircraft.
  5. Install nose fairing on pylon.
  6. Remove ADU-299A/A adapter from the launcher.
  7. Repeat steps 1 through 6 for each station to be unloaded.
- 3-10. PMBR INSTALLATION. To install the PMBR on wing station 1, 2, 4 and 5 (figure 3-15), perform the following:
1. Ensure that PMBR is marked IAAC 586 for AV-8A aircraft.
  2. Install AV-8A sway brace pads on the PMBR.
  3. Install suspension lugs (P/N 64A81C126-1) (Modified) at the 14 inch spacing.
  4. Install PMBR on station 1, 2, 4 and 5 as follows:
    - a. Raise PMBR until ejector rack unit hooks can be latched.
    - b. Gently shake PMBR to ensure PMBR is supported by ejector rack unit hooks.
    - c. Install ejector rack unit safety pin.
    - d. Open aft electrical access door on pylon.
    - e. Connect SNEB rocket connector to PMBR rocket receptacle (figure 3-16).
    - f. Adjust sway braces and tighten 84 inch-pounds.
    - g. Install aft electrical access door on pylon.
    - h. Repeat steps (a) through (g) for each PMBR.





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Figure 3-15. PMBR Installation



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Figure 3-16. SNEB Rocket Connector

3-11. PMBR REMOVAL. To remove PMBR from wing stations 1, 2, 4 and 5. Perform the following:

1. Open aft electrical access door in pylon.
2. Disconnect SNEB rocket connector from PMBR receptacle and stow on receptacle in pylon.
3. Loosen ejector rack unit sway braces.
4. Raise PMBR until lugs float in ejector rack unit hooks.
5. Remove ejector rack unit safety pin.
6. Open ejector rack unit hooks and lower PMBR. Remove from area.
7. Repeat steps 1 through 6 for each PMBR.







## SECTION IV

### RELEASE AND CONTROL SYSTEM CHECKS

#### 4-1. INTRODUCTION.

4-2. The purpose of Release and Control System Checks is to provide for the functional testing of the armament/missile systems of the aircraft. Preferred procedures for both jettison and normal release are presented. One alternate procedure will be presented when applicable.

4-3. Release and Control System Checks must be performed prior to initial weapons/stores loading, after reconfiguration of the aircraft (as defined in section III), after any malfunction in the Release and or Control System, and prior to placing the aircraft on alert status. Checks will be performed on turnaround missions if turnaround time and operation commitment permits; however, weapons must be downloaded prior to performing Release and Control Checks. Deviation from these procedures may be authorized by the Operational Commander when necessary and required, provided the deviation authorized does not detract from or interfere with safety and/or reliability.

4-4. Release and Control System Checks will not be performed with weapons loaded on the aircraft. Checks may be performed with airborne stores (fuel tanks) installed on the aircraft stations provided breech caps are disconnected, ejector cartridges are removed, and safety pins are installed.

4-5. Checks for the AIM-9 Sidewinder missile loads are required before each missile loading and following a missile firing failure or dud.

4-6. Release/jettison checks must be repeated:

1. After any indicated check malfunction has been corrected.
2. After the performance of any maintenance affecting release/jettison circuitry or components.

4-7. Indications other than those specified in a check are considered malfunctions.

#### 4-8. HOW TO USE THIS SECTION.

4-9. Procedures for Release and Control System Checks are separated into individual checks for each weapon system to be checked. Table 4-1 lists each weapon/store that may be loaded on the aircraft and the systems that should be checked for each weapon/store. Table 4-2 lists each system, the functions that are checked, the paragraph containing the check, and the test equipment required to perform the check. The aircraft will be prepared in accordance with Aircraft Preparation (paragraph 4-12), prior to each system check. Postcheck procedures will be performed (in accordance with paragraph 4-44) after completion of last check.

Table 4-1. Preloading Checks

Weapon/Store	System Check
GP Bombs; Cluster Bombs; Fire Bombs	Jettison System; Bomb Release System; Bomb Release System Multiple Station
Pyrotechnics (Flares)	Jettison System; Rocket Firing System
Rocket Launchers	Jettison System; Rocket Firing System
Practice Bombs	(PMBR); Practice Bomb System
Fuel Tanks	Jettison System
AIM-9 (LAU-7 installed)	AIM-9 (Sidewinder) System Check; (LAU-7 installed)
ADEN 30MM Gun	Gun Firing System



Table 4-2. Check Location and Equipment Required

SYSTEM CHECKED	FUNCTIONS	PARA NO.	TEST EQUIP REQUIRED
Jettison System	Armament Bus Power Safety Interlock, Single/all station Jettison firing power.	4-16	AN/AWM-54; TS-2875A/AWM (modified); Explosive Release Unit Test Set EXP. 6101
Bomb Release System	Armament Bus Power, Safety Interlock, mechanical arming, weapon present indications, and bomb release firing power.	4-20 4-24	AN/AWM-54; TS-2875A/AWM (modified); Explosive Release Unit Test Set EXP. 6101
Fuel Tank Jettison	Armament Bus Power, Safety Interlock, Store present indications and Fuel Tank Jettison firing power.	4-16	AN/AWM-54; TS-2875A/AWM (modified); Explosive Release Unit Test Set EXP. 6101
Practice Bomb System (PMBR)	Armament Bus Power Safety Interlock, Store Present indication and PMBR operation	4-28	Operating lever
Rocket Firing System	Armament Bus Power, Safety Interlock, and Rocket Firing power.	4-32	AN/AWM-54; TS-2875A/AWM
Gun Firing System	Armament Bus Power, Safety Interlock, purge door operations and gun firing power.	4-36	Multimeter (AN/PSM-4 or equivalent)
AIM-9 (SIDEWINDER) System	Armament Bus Power Safety Interlock, Sidewinder control, firing, tone and nitrogen cooling.	4-40	ASM-20B

4-10. GROUND SUPPORT EQUIPMENT (GSE).

this section. This does not preclude the use of other authorized equipment.

4-11. Table 4-3 lists all GSE required to perform the release and control system checks provided in

Table 4-3. Ground Support Equipment

EQUIPMENT	PURPOSE
External power source, 115 VAC, 400Hz, 3-phase	All checks
TS-2875A/AWM (Modified) W/CED 72400 breech cap adapter	Jettison, Bomb Release, Rocket Firing System
AN/AWM-54 Aircraft Firing Circuit Test Set	Jettison, Bomb Release, Rocket Firing System
Explosive Release Unit Test Set EXP. 6101	Bomb Release Systems (multiple stations)
Multimeter (AN/PSM-4 or equivalent)	Gun Firing System
Arming Wires (3 minimum)	Bomb Release Systems (Mechanical Fuzing)
Weight on wheels switch actuating tool (local manufacture)	All checks
AN/ASM-20B Guided Missile Launcher Test Set	AIM-9 (Sidewinder) System
Radio Headset	AIM-9 (Sidewinder) System
Ground Safety Pin/Manual Release Tool	Bomb Release System
PMBR Operating Handle	Practice Bomb (PMBR) System



4-12. AIRCRAFT PREPARATION.

4-13. Prepare the aircraft for release and control system checks of the armament system as follows:

1. Ground aircraft using a local command approved grounding cable attached to base metal of the aircraft, and to an approved (low resistive earth) ground.

2. Electrical power removed from aircraft.

3. Verify that all breech caps and all ejector rack cartridges are removed.

4. Close all ejector rack suspension hooks.

5. Verify that safety pins are installed in all aircraft stations on which stores are installed.

6. Verify that gun firing cables are connected at the gun safety breaks and that guns are clear of all ammunition.

7. Position cockpit and armament control switches as follows:

a. Batteries/external power - OFF (figure 2-6).

b. On Weapons Control Panel position switches as follows (figure 2-6):

- (1) Gun selector - OFF
- (2) Pylon selector - OFF
- (3) Fuzing selector - OFF
- (4) Patching - OFF
- (5) Auto/Man - MAN
- (6) Single/Double - S

c. On Sidewinder Control Panel position switches as follows (figure 2-6):

- (1) Arm Master 1 and 2 - OFF
- (2) Ground Test switch - NORM (Cover down)
- (3) Scan - OFF
- (4) Bombs/Rockets/Sidewinder - Bombs/Rockets

d. On Pilot's Flight Control Grip ensure that the bomb/rp (rocket projectile) safety flap lowered to the SAFE position, gun trigger stowed in control grip and Gun Safety Catch in the SAFE position (figure 2-6).

8. Disconnect Pilot's Display Recorder (HUD camera).

9. Remove ARMAMENT SAFETY KEY from aircraft.

10. All other switches to OFF, SAFE, or NORMAL.

11. After completion of Aircraft Preparation proceed to the system check for the weapons/stores intended to be loaded.

4-14. TS-2875A/AWM ARMAMENT FIRING CIRCUIT TEST SET OPERATING PROCEDURES.

4-15. The following procedures are applicable when performing Release and Control systems tests using TS-2875A/AWM test set.

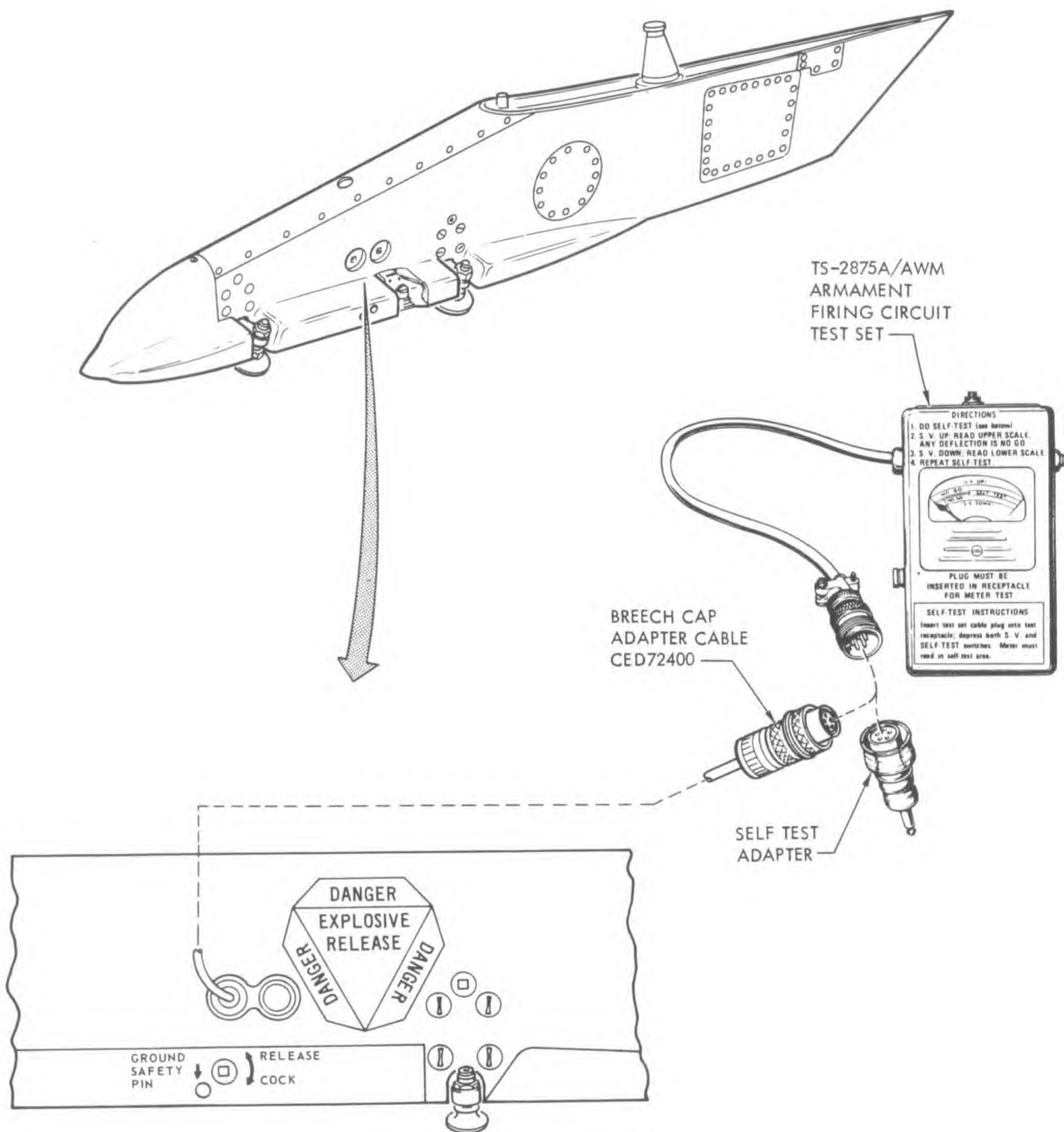
1. Prior to performing a system test and after the completion of the test, a self test of the tester must be performed in accordance with the instructions printed on the test set.

2. When 28 vdc is applied to the test set, the meter needle will deflect to approximately the middle of the upper scale. For bomb release checks the meter needle will deflect approximately 3/8 to 1/2 inch. This is an indication that sufficient energy is available to fire an ejector cartridge. The amount of meter needle deflection is dependent upon tester ambient temperature and the actual voltage applied. If more accurate voltage readings are desired, a multimeter (AN/PSM-4 or equivalent) should be used. To prevent damage to the TS-2875A/AWM meter the stray voltage (SV) switch must not be actuated when checking an energized circuit or when the meter needle is deflected off the zero index of the upper scale when checking a deenergized circuit.

3. When aircraft armament firing circuits are deenergized, the meter needle will return to the zero index. Any deflection of the meter needle on the upper scale, with armament firing circuit deenergized, indicates an aircraft malfunction which must be corrected before proceeding with the check.

4. When performing a zero voltage check on a deenergized armament firing circuit, ensure that the stray voltage (SV) switch is not actuated and that the meter needle is at the zero index (upper scale) mark. With the meter needle indicating zero (upper scale) press the stray voltage (SV) switch and observe reading (lower scale). A meter needle indication in the GO (green) area (lower scale) indicates a safe armament firing circuit which has insufficient energy to fire a squib/cartridge. An indication in the NO-GO (red) area (lower scale) indicates an armament firing circuit malfunction and must be corrected prior to proceeding with the check. To prevent damage to the test set, release the stray voltage (SV) switch immediately after performing the above check. Do not connect the tester to an electrical circuit with the stray voltage (SV) switch actuated.





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Figure 4-1. Jettison Test Connection



4-15A. AN/AWM-54 AIRCRAFT FIRING CIRCUIT TEST SET OPERATING PROCEDURES.

4-15B. The following procedures are applicable when performing Release and Control systems checks using AN/AWM-54 test set.

1. Prior to performing a system check and after the completion of the check, a self test of the test set must be performed as follows:

a. Connect cable W-1 with any adapter (W-2 and up) to test set J-1.

b. Position the FCTN switch to the NO-GO position.

c. Press and release the SELF TEST push button. The NO-GO (red) indicator will illuminate while the SELF TEST push button is depressed.

d. Position the FCTN switch to the GO position.

e. Press and release the SELF TEST push button. The GO (green) indicator will illuminate while the SELF TEST push button is depressed.

f. Any indication other than that specified above indicates a defective test set or a defective W-1 cable and adapter assembly.

2. With the test set FCTN switch in the F/C (firing circuit) position and the TEST push button depressed, the test set monitors the aircraft firing circuit capability.

a. A GO (green) indication verifies that sufficient energy is available at the circuit under test to detonate any electro-explosive device and is the desired indication when 28VDC specified in the Release and Controls checks. The GO indication will remain on as long as the TEST push button is depressed.

b. A NO-GO (red) indication indicates that there may not be sufficient energy available at the circuit under test to detonate an electro-explosive device. A NO-GO indication with the test set FCTN switch in the F/C position does NOT insure that the firing circuit under test has insufficient energy available to detonate any electro-explosive device.

3. With the test set FCTN switch in the S/V (stray voltage) position and the TEST push button depressed the test set monitors the aircraft firing circuit to assure a safe circuit.

a. A GO (green) indication verifies that there is insufficient energy available at the circuit under test to detonate any electro-explosive device and is the desired indication when zero volts is specified in the Release and Control checks.

b. A NO-GO (red) indication indicates that there may be sufficient energy available at the circuit under test to detonate an electro-explosive device.



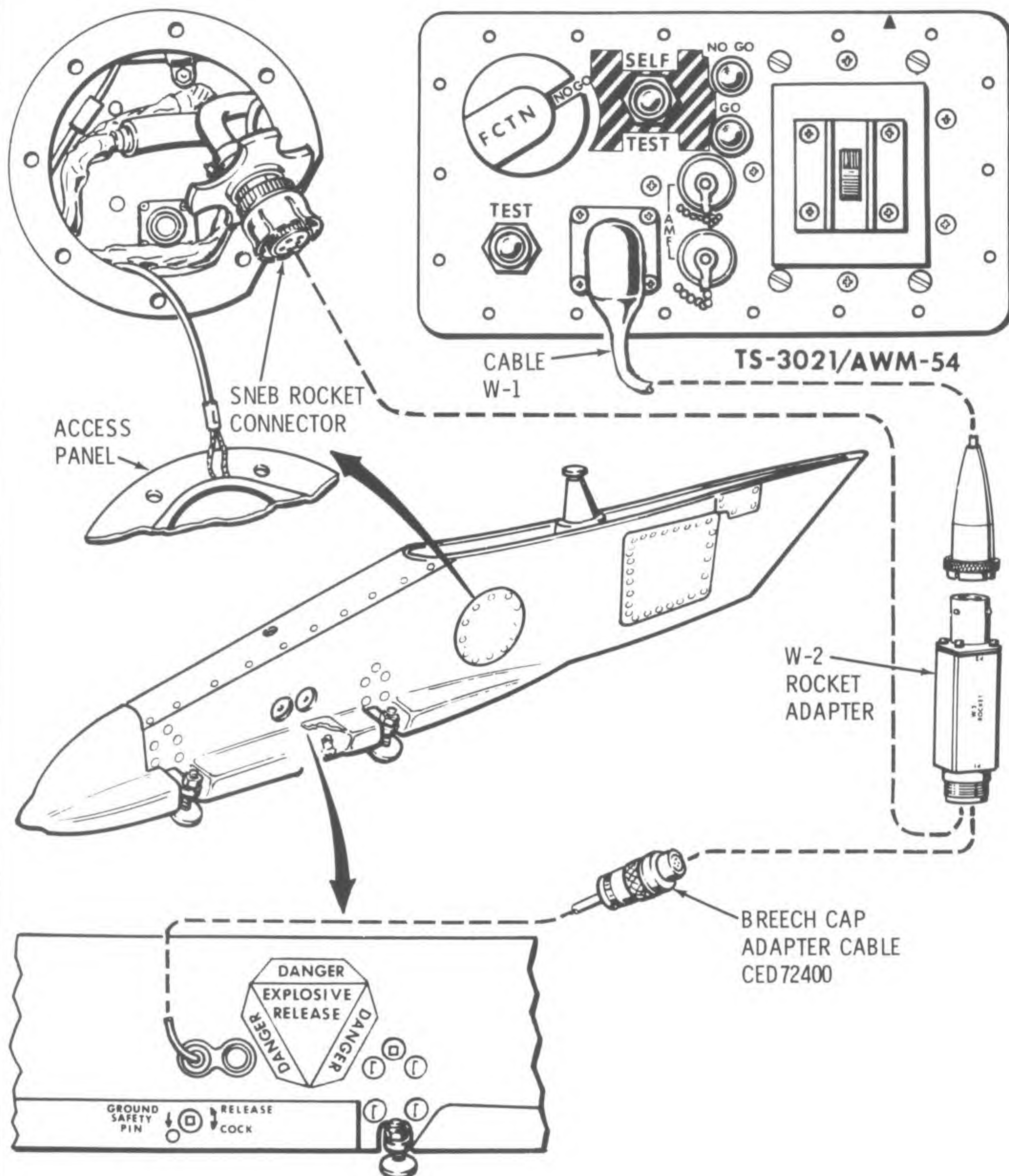


Figure 4-1A. AN/AWM-54 Test Set Connections



4-16. JETTISON SYSTEM CHECKS.

WARNING

4-17. The following procedures are used to check the single and clear aircraft jettison system for each aircraft station.

Prior to applying power, cockpit switches and controls must be ready to receive power.

4-18. TEST EQUIPMENT REQUIRED. The following equipment is required:

CAUTION

1. Aircraft Firing Circuit test set AN/AWM-54 or Aircraft Armament Firing Circuit Tester TS-2875A/AWM.

Aircraft battery switches must be on prior to and with external power applied to aircraft to prevent damage to aircraft electrical system.

2. Although not recommended, a multimeter (AN/PSM-4 or equivalent) can be used to measure the firing pin voltages located inside of the ERU-119 breech cap housing.

2. Place battery switches to ON.

3. Weight on wheels wedge.

3. Apply external power to the aircraft.

4-19. TEST PREPARATION. (figure 4-1 or 4-1A)  
Proceed as follows:

4. Place Anti Coll switch located on the cabin port aft console panel to ON.

1. Complete aircraft preparation procedure. Refer to paragraph 4-12.

5. Press DC Reset button. Check that anti collision lights are flashing.

6. Proceed to table 4-4.

Table 4-4. Store/Weapon Jettison

AN/AWM-54 - TS  
TS-2875A/AWM - TS  
Weapon Control Panel - WCP  
Aircraft - ACFT  
Sidewinder Control Panel - SCP

STEP	OPERATION		INDICATION	
	SWITCH/ITEM	POSITION/ACTION		
NOTE				
All lamp indications are on the WCP.				
1.	ACFT	Weight on wheels wedge	Installed	
2.	SCP	#1 and #2 Arm Master	ON	
3.	WCP	Test AMSB button	Press and Hold	Test lamps #1 and #2 come on.
4.	WCP	Test AMSB button	Released	Test lamps go off.
5.	Connect test set or multimeter leads to breech firing pin and ground.			
CAUTION				
To prevent damage to pylon circuitry do not energize jettison circuits longer than 3 seconds.				
NOTE				
Check voltage at the forward breeches during steps 6 and 7. Aft breeches will be checked during clear aircraft checks.				
6.	WCP	Jettison button	Depress	28 VDC



Table 4-4. Store/Weapon Jettison (Continued)

STEP		OPERATION		INDICATION
		SWITCH/ITEM	POSITION/ACTION	
7.	WCP	Jettison button	Release	0 volts
8.	Repeat steps 6 and 7 for remaining stations.			Tester indicates same as steps 6 and 7.
NOTE				
Check voltage at the aft breeches during steps 9 and 10.				
9.	WCP	Clear A/C Bar	Depressed	28 VDC
10.	WCP	Clear A/C Bar	Released	0 volts
11.	Repeat steps 6 thru 10 for remaining stations.			Tester indicates same as steps 6 and 7.
NOTE				
Perform upper indicator light check steps 12 thru 15 if fuel tanks are to be loaded.				
12.	WCP	Inboard pylons Patching	F	
13.	WCP	Fuzing selector	OFF	
14.	WCP	Inboard pylons selectors	ON	Upper indicator lamps come on.
15.	WCP	Inboard pylons selectors	OFF	Upper indicator lamps go off.
16.	WCP	Patching	OFF	
17.	ACFT	Weight on wheels	Removed	
18.	WCP	Test AMSB button	Depressed and Released	#1 and #2 Test lamps off during test.
19.	SCP	#1 and #2 Arm Master	OFF	
20.	Remove external power from aircraft.			
21.	ACFT	Place Anti Coll switch to OFF.		
22.	Place battery switches to off.			
23.	Perform Postcheck Procedures (paragraph 4-44) if no other checks are to be performed.			



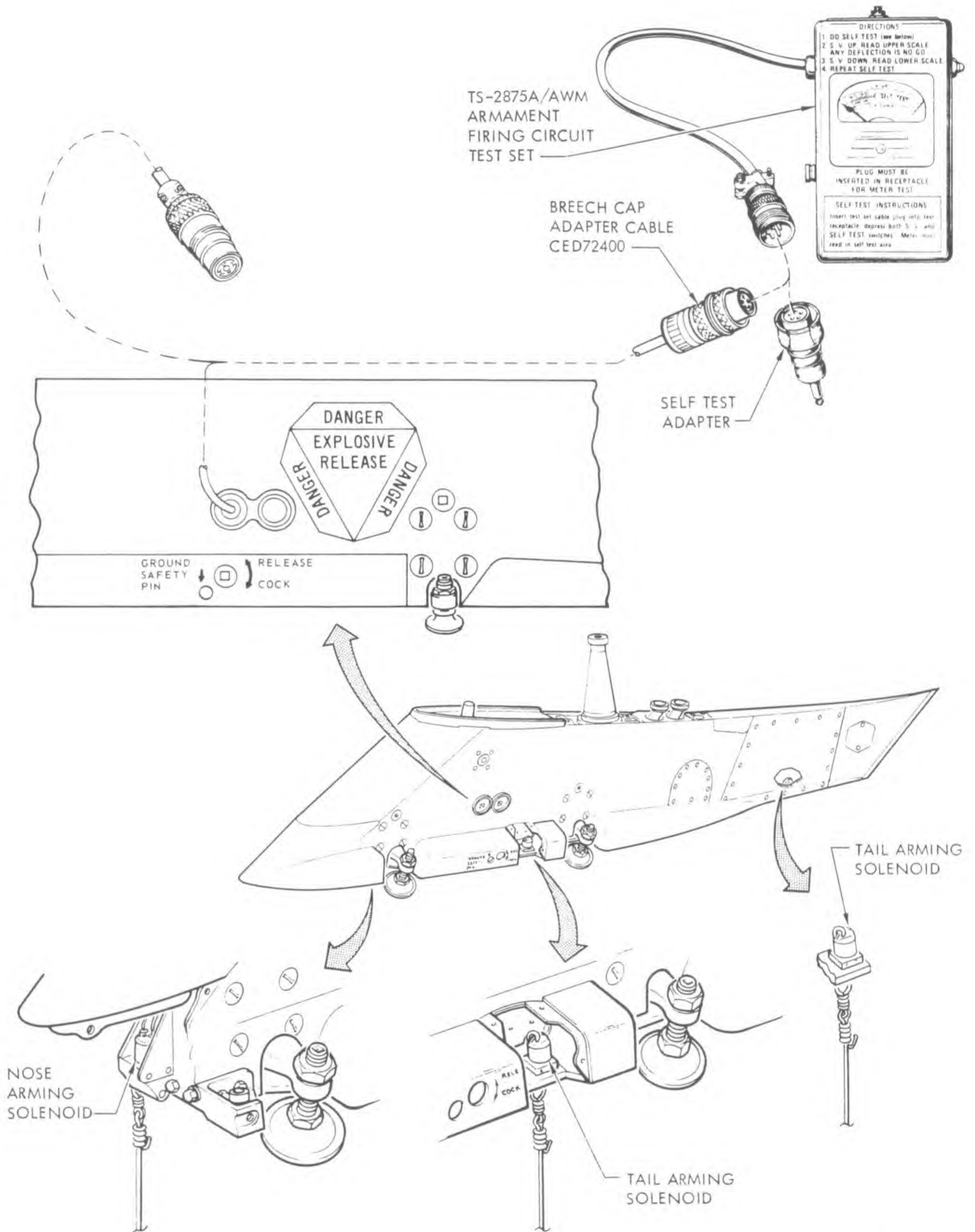


Figure 4-2. Bomb Release System Connection (Single Station)



4-20. BOMB RELEASE SYSTEM CHECKS (SINGLE STATION).

4-21. The following procedure is used to check the manual bomb release system and the electro-magnetic fuzing units (solenoids).

4-22. TEST EQUIPMENT REQUIRED. The following equipment is required.

1. Aircraft Firing Circuit test set AN/AWM-54 or Aircraft Armament Firing Circuit Tester TS-2875A/AWM.

2. Although not recommended a multimeter (AN/PSM-4 or equivalent) can be used to measure the firing pin voltages located inside of the ERU-119 breech cap housing.

3. Weight on wheels wedge.

4. Arming wires.

5. Ground safety pin/manual release tool.

4-23. TEST PREPARATION. (figure 4-1 or 4-1A)  
Proceed as follows:

1. Complete aircraft preparation procedures. Refer to paragraph 4-12.

WARNING

Prior to applying power, cockpit switches and controls must be ready to receive power.

CAUTION

Aircraft battery switches must be on prior to and with external power applied to aircraft to prevent damage to aircraft electrical system.

2. Place battery switches to ON.

3. Apply external power to the aircraft.

4. Place Anti Coll switch located on the cabin port aft console panel to ON.

5. Press DC Reset button. Check that anti collision lights are flashing.

6. Proceed to table 4-5.

Table 4-5. Bomb Release System Check (Single Station)

AN/AWM-54 - TS  
TS-2875A/AWM - TS  
Weapon Control Panel - WCP  
Sidewinder Control Panel - SCP  
Aircraft - ACFT  
Pilots Flight Control Stick - PFCS

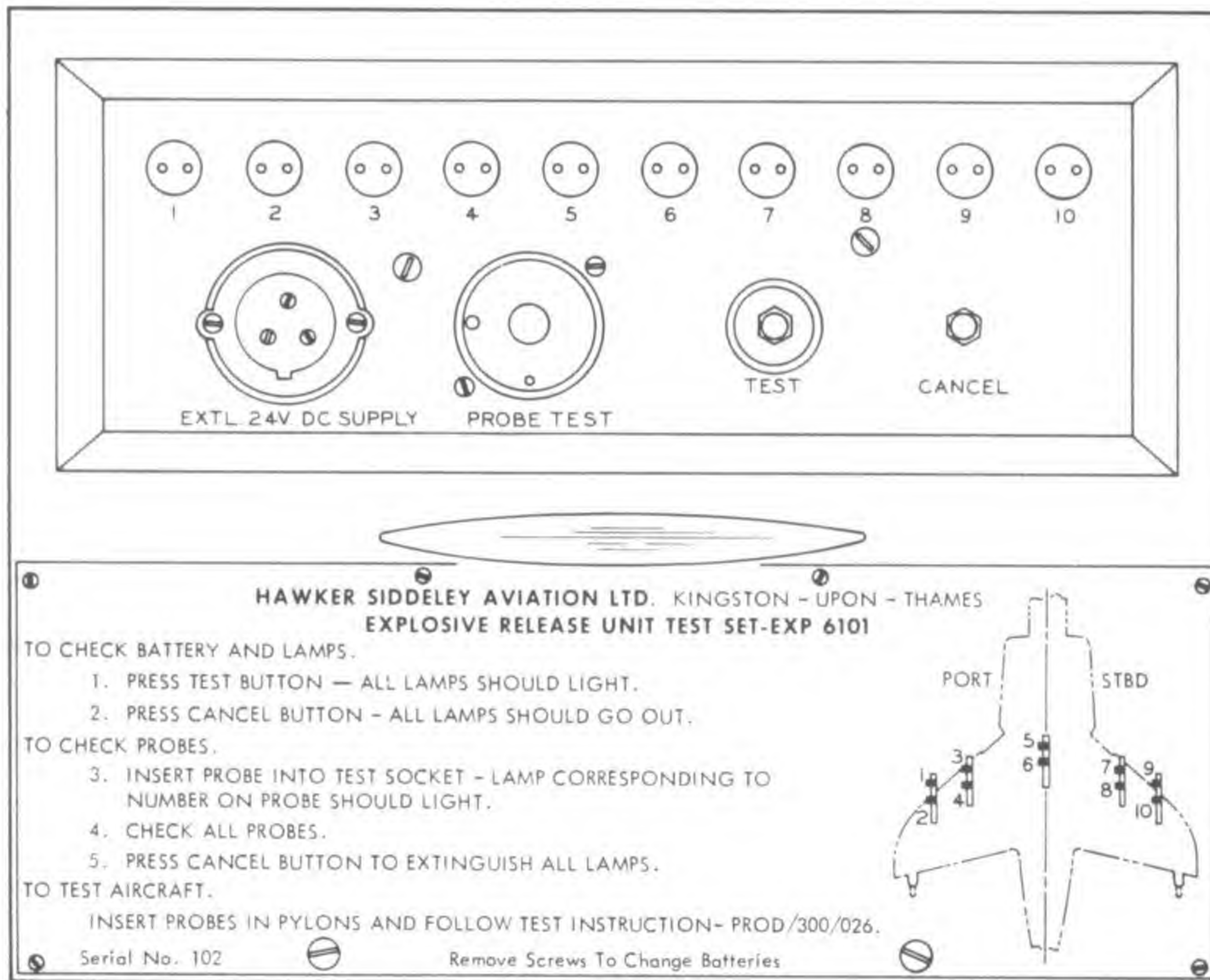
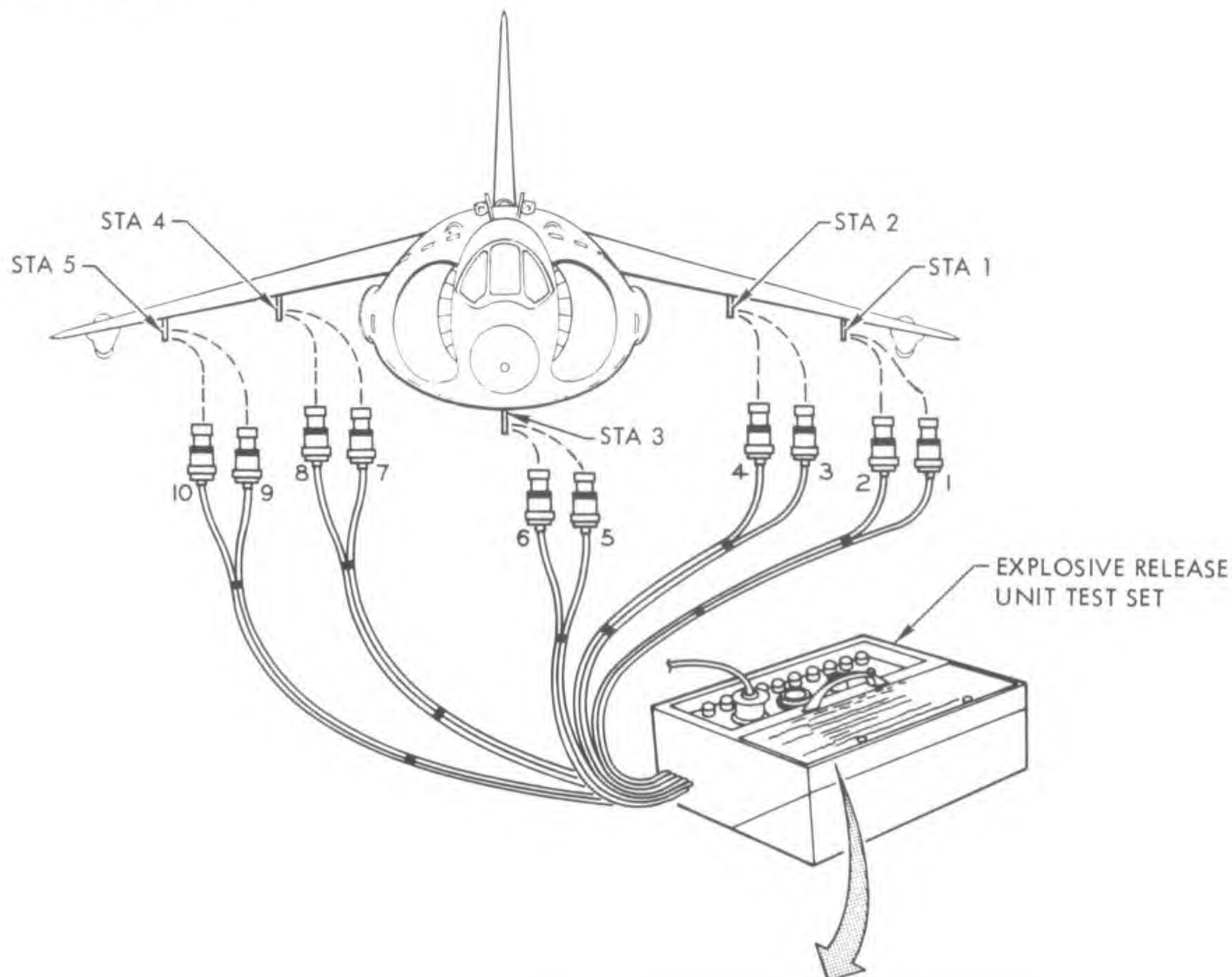
STEP		OPERATION		INDICATION
		SWITCH/ITEM	POSITION/ACTION	
1.	ACFT	Weight on wheels wedge	Installed	
2.	SCP	#1 and #2 Arm Master	ON	
NOTE				
All lamp indications are on the WCP.				
3.	WCP	TEST AMSB button	Press and Hold	Test lamps #1 and #2 come on.
4.	WCP	TEST AMSB button	Release	Test lamps go off.
ARMING SOLENOIDS				
5.	ACFT	Arming wires	Insert in solenoids	
6.	WCP	Fuzing selector	NT	
7.	PFCS	Bomb/rp safety flap	Raised	
8.			Pull arming wires	Arming wires retained.
9.	WCP	Fuzing selector	T	



Table 4-5. Bomb Release System Check (Single Station) (Continued)

STEP		SWITCH/ITEM	OPERATION POSITION/ACTION	INDICATION
10.			Pull arming wires	Nose - Releases Tail - Retained
11.	PFCS	Bomb/rp safety flap	Lowered	Tail arming wire releases.
12.	WCP	Fuzing selector	OFF	
13.	Repeat steps 5 through 12 for other stations to be tested.			
14.	WCP	Fuzing selector	NT	
15.	WCP	AUTO/MAN	MAN	
16.	WCP	Patching sw. All stations to be tested	A	
17.	WCP	Pylon selector	ON	Upper indicator lamps come on.
18.	Connect test set or multimeter leads to breech firing pin and ground.			
19.	PFCS	Bomb/rp safety flap	Raised	
NOTE				
Perform steps 20 and 21 for both breeches.				
20.	PFCS	Bomb/rp button	Depressed	Tester indicates a pulse.
21.	PFCS	Bomb/rp button	Released	
22.	PFCS	Bomb/rp safety flap	Lowered	
23.	ACFT	Pylon hooks	Open	Upper indicator lamps go off.
24.	WCP	Pylon selector	OFF	
25.	Repeat steps 14 through 24 for remaining stations. Indications will be the same.			
26.	WCP	Fuzing selector	OFF	
27.	WCP	Patching	OFF	
28.	ACFT	Weight on wheels wedge	Removed	
29.	WCP	TEST AMSB button	Depressed and Released	#1 and #2 Test lamps off during test.
30.	SCP	#1 and #2 Arm Master	OFF	
31.	Remove external power from aircraft.			
32.	Place Anti Coll switch to OFF.			
33.	Place battery switches to off.			
34.	Perform Postcheck Procedures (paragraph 4-44) if no other checks are to be performed.			





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Figure 4-3. Explosive Release Unit Test Set Connection



4-24. BOMB RELEASE SYSTEM CHECKS (MULTIPLE STATION).

4-25. The following procedure is used to check the manual bomb release system and the electro-magnetic fuzing units.

4-26. TEST EQUIPMENT REQUIRED. The following equipment is required:

1. Explosive Release Unit Test Set EXP. 6101.
2. Weight on wheels wedge.
3. Arming wire.
4. Ground safety pin/manual release tool.

4-27. TEST PREPARATION. (figure 4-3) Proceed as follows:

1. Complete aircraft preparation procedures. Refer to paragraph 4-12.
2. Connect test set to pylons under test.

3. Open all ejector racks hooks.

WARNING

Prior to applying power, cockpit switches and controls must be ready to receive power.

CAUTION

Aircraft battery switches must be on prior to and with external power applied to aircraft to prevent damage to aircraft electrical system.

4. Place battery switches to ON.
5. Apply external power to the aircraft.
6. Place Anti Coll switch located on the cabin port aft console panel to ON.
7. Press DC reset button. Check that anti collision lights are flashing.
8. Proceed to table 4-6.

Table 4-6. Bomb Release System Check (Multiple Station)

Explosive Release Unit Test Set - TS  
Weapon Control Panel - WCP  
Sidewinder Control Panel - SCP  
Aircraft - ACFT  
Pilots Flight Control Stick - PFCS

STEP		OPERATION		INDICATION
		SWITCH/ITEM	POSITION/ACTION	
1.	ACFT	Weight on wheels wedge	Installed	
2.	SCP	#1 and #2 Arm Master	ON	
NOTE				
All lamp indications are on the WCP				
3.	WCP	TEST AMSB button	Press and hold	Test lamps #1 and #2 come on
4.	WCP	TEST AMSB button	Release	Test lamps go off
5.	WCP	AUTO/MAN	MAN	
6.	WCP	Patching sw. All stations to be tested	A	
ARMING SOLENOIDS				
7.	ACFT	Arming wire swivels	Insert in solenoids	
8.	WCP	Fuzing selector	NT	
9.	PFCS	Bomb/rp safety flap	Raised	
			Pull arming wires	Arming wires retained



Table 4-6. Bomb Release System Check (Multiple Station) (Continued)

STEP		OPERATION		INDICATION
		SWITCH/ITEM	POSITION/ACTION	
10.	WCP	Fuzing selector	T	
			Pulling arming wires	Nose - Releases Tail - Retained
11.	PFCS	Bomb/rp safety flap	Lowered	Tail arming wire releases
12.	WCP	Station selector (under test)	ON	Station selector upper indicator lamp - OFF
13.	ACFT	Rack hooks	Closed	Station selector upper indicator lamp comes on
14.	PFCS	Bomb/rp safety flap	Raised	
15.	PFCS	Bomb/rp button	Depressed & Released	Test set indicates - ON
16.	TS	(Test Set) CANCEL	Press	Test set indicators - OFF
17.	PFCS	Bomb/rp safety flap	Lowered	
18.	WCP	Station selector (under test)	OFF	Station selector upper indicator lamp - OFF
19.	Repeat steps 9 through 18 for remaining stations to be checked.			
<u>CAUTION</u>				
Jettison circuits must not be energized longer than three seconds.				
20.	WCP	Jettison button (all stations)	Press & release	Test set indicators - ON
21.	TS	(Test set) CANCEL	Press	Test set indicators - OFF
22.	WCP	CLEAR A/C bar	Press & Release	Test set indicators - ON
23.	TS	(Test Set) CANCEL	Press	Test set indicators - OFF
24.	WCP	Timing switch	320	
25.	WCP	Station selector (all)	ON	All station selector upper indicator lamps - ON
26.	PFCS	Bomb/rp safety flap	Raised	All test set indicators OFF, remain OFF
27.	PFCS	Bomb/rp button	Depressed	Test set indicators - on; Sequence 5, 1, 4, 2 & 3 at approximately one third sec- onds interval
28.	PFCS	Bomb/rp button	Released	
29.	TS	(Test Set) CANCEL	Press	Test set indicators - OFF



Table 4-6. Bomb Release System Check (Multiple Station) (Continued)

STEP		SWITCH/ITEM	OPERATION	INDICATION
			POSITION/ACTION	
30.	WCP	Station selector (all)	OFF	All station selector upper indicator lamps - OFF
31.	WCP	Fuzing selector	OFF	
32.	WCP	Patching	OFF	
33.	ACFT	Weight on wheels wedge	Removed	Test lamps remain off during test.
34.	WCP	TEST AMSB button	Depressed and released	
35.	WCP	AUTO/MAN	MAN	
36.	SCP	#1 and #2 Arm Master	OFF	
37.	Remove external power from aircraft.			
38.	Place Anti Coll switch to OFF.			
39.	Place battery switches to off.			
40.	Disconnect test set.			
41.	Perform Postcheck Procedures (paragraph 4-44) if no other checks are to be performed.			

4-28. PRACTICE BOMB (PMBR) SYSTEM CHECK.

WARNING

4-29. The following procedures are used to check the PMBR release system. The test checks the aircraft with PMBR installed.

Prior to applying power, cockpit switches and controls must be ready to receive power.

4-30. TEST EQUIPMENT REQUIRED. The following equipment is required:

CAUTION

1. Weight on wheels wedge.
2. PMBR operating handle.

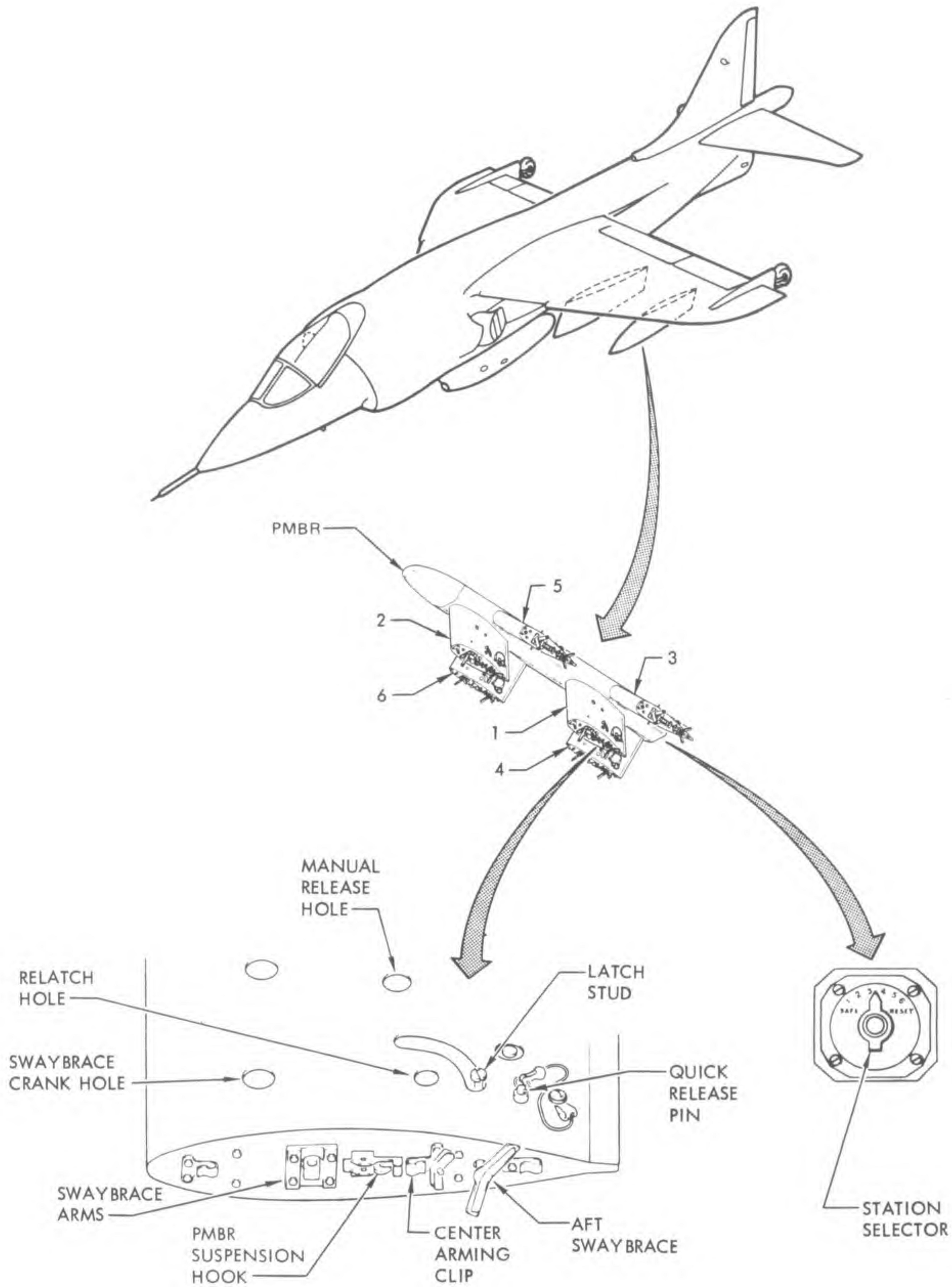
Aircraft battery switches must be on prior to and with external power applied to aircraft to prevent damage to aircraft electrical system.

4-31. TEST PREPARATION. (figure 4-4) Proceed as follows:

1. Complete aircraft preparation procedures. Refer to paragraph 4-12.
2. Ensure that PMBR is installed and SNEB rocket connector is connected.
3. Rotate PMBR selector to SAFE.
4. Cock and latch each release assembly.

5. Place battery switches to ON.
6. Apply external power to the aircraft.
7. Place Anti Coll switch located on the cabin port aft console panel to ON.
8. Press DC Reset button. Check that anti collision lights are flashing.
9. Proceed to table 4-7.





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Figure 4-4. PMBR Check Details

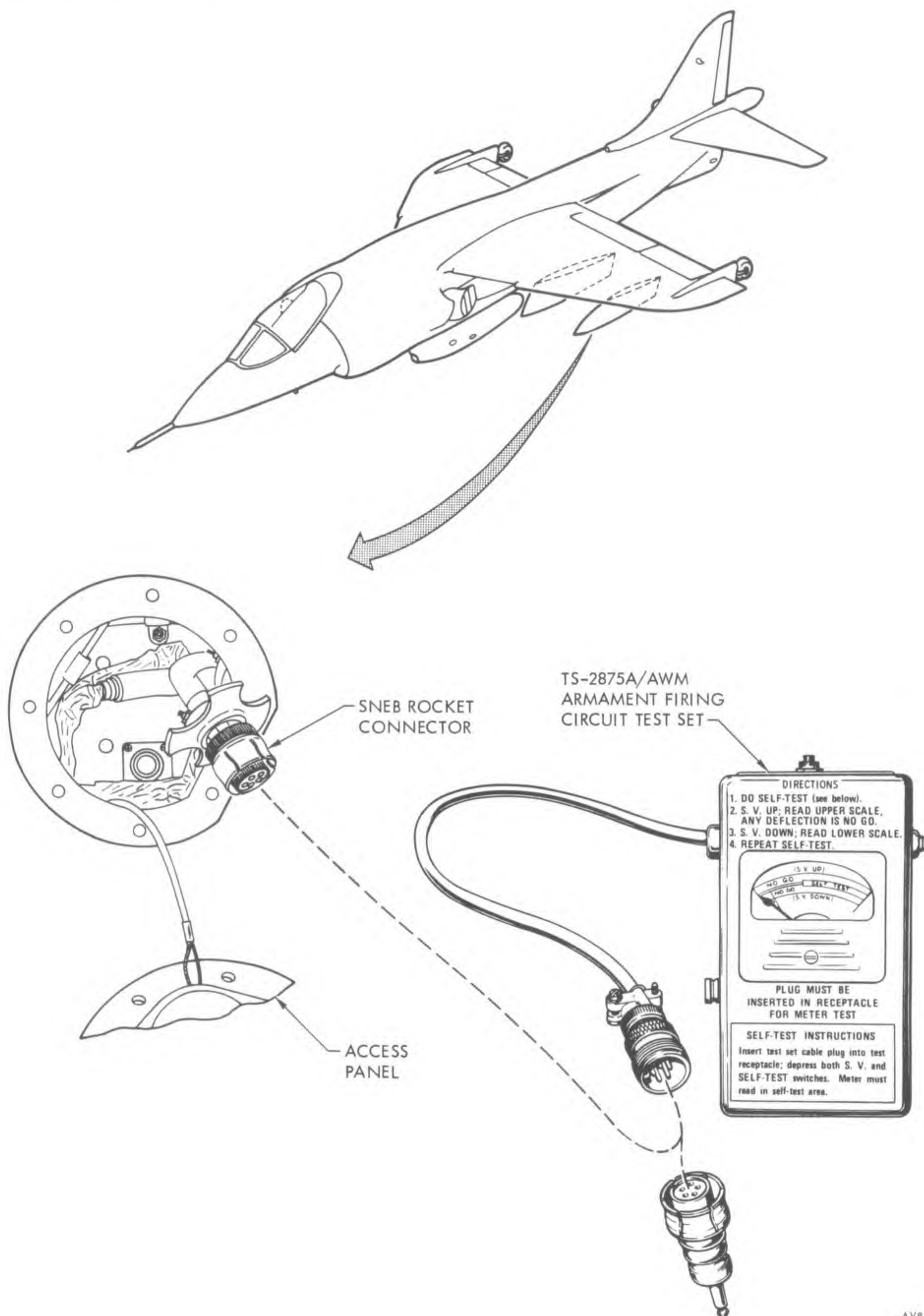


Table 4-7. PMBR Systems Check

Practice Multiple Bomb Rack - PMBR  
Weapons Control Panel - WCP  
Sidewinder Control Panel - SCP  
Aircraft - ACFT  
Pilots Flight Control Stick - PFCS

STEP		OPERATION		INDICATION
		SWITCH/ITEM	POSITION/ACTION	
1.	ACFT	Weight on wheels wedge	Installed	
2.	SCP	#1 and #2 Arm Masters	ON	
3.	WCP	TEST AMSB button	Press and Hold	Test lamps #1 and #2 come on
4.	WCP	TEST AMSB button	Released	Test lamps go off
5.	WCP	Patching	P	
6.	WCP	Fuzing selector	NT	
7.	WCP	Pylon selector	ON	Upper Indicator lamps come on
8.	PFCS	Bomb/rp safety flap	Raised	
9.	PFCS	Bomb/rp button	Depressed	PMBR Selector rotates to position 1; PMBR hook does not open
10.	PFCS	Bomb/rp button	Released	
11.	PFSC	Bomb/rp safety flap	Lowered	
12.	Repeat steps 8 through 11 six times.			PMBR hooks open in sequence PMBR selector rotates through position 6 to reset
13.	WCP	Pylon selector	OFF	Upper indicator lamps go off
14.	Repeat steps 5 through 13 for each station to be tested.			
15.	WCP	Fuzing selector	OFF	
16.	WCP	Patching	OFF	
17.	ACFT	Weight on wheels wedge	Removed	
18.	WCP	TEST AMSB button	Pressed & Released	#1 and #2 Test lamps off during test
19.	SCP	#1 and #2 Arm Master	OFF	
20.	Remove external power from aircraft.			
21.	Place Anti Coll switch to OFF.			
22.	Place battery switches to off.			
23.	Perform Postcheck Procedures (paragraph 4-44) if no other checks are to be performed.			





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Figure 4-5. Rocket Firing System Connection



#### 4-32. ROCKET FIRING SYSTEM.

4-33. The following procedures are used to check the aircraft rocket firing system.

4-34. TEST EQUIPMENT REQUIRED. The following equipment is required.

1. Aircraft Firing Circuit test set AN/AWM-54 or Aircraft Armament Firing Circuit Tester TS-2875A/AWM.

2. Weight on wheels wedge.

4-35. TEST PREPARATION. (figure 4-1A or 4-5)  
Proceed as follows:

1. Complete aircraft preparation procedure. Refer to paragraph 4-12.

#### WARNING

Prior to applying power, cockpit switches and controls must be ready to receive power.

#### CAUTION

Aircraft battery switches must be on prior to and with external power applied to the aircraft to prevent damage to aircraft electrical system.

2. Place battery switches to ON.

3. Apply external power to the aircraft.

4. Place Anti Coll switch located on the cabin port aft console panel to ON.

5. Press DC Reset button. Check that anti collision lights are flashing.

6. Proceed to table 4-8.

Table 4-8. Rocket Firing System Check

AN/AWM-54 - TS  
TS-2875A/AWM - TS  
Weapon Control Panel - WCP  
Sidewinder Control Panel - SCP  
Aircraft - ACFT  
Pilots Flight Control Stick - PFCS

STEP	SWITCH/ITEM	OPERATION		INDICATION
			POSITION/ACTION	
1.	ACFT	Weight on wheels wedge	Installed	
2.	SCP	#1 and #2 Master Arm	ON	
NOTE				
All lamp indications are on the WCP.				
3.	WCP	TEST AMSB	Press and Hold	Test lamps #1 and #2 come on.
4.	WCP	TEST AMSB button	Released	Test lamps go off.
5.	TS	Connect test set to aircraft rocket cable.		
6.	WCP	Patching	R	
7.	WCP	Fuzing selector	R/P	
8.	WCP	Pylon selector	ON	Upper indicator lamp on.
9.	PFCS	Bomb/rp safety flap	Raised	Test set indicates 0 volts.
10.	PFCS	Bomb/rp button	Depressed	Test set indicates 28 VDC.
11.	PFCS	Bomb/rp button	Released	Test set indicates 0 volts.
12.	PFCS	Bomb/rp safety flap	Lowered	
13.	WCP	Pylon selector	OFF	Upper indicator lamps go off.



Table 4-8. Rocket Firing System Check (Continued)

STEP	SWITCH/ITEM	OPERATION POSITION/ACTION	INDICATION
14.	Repeat steps 8 through 13 for each station to be tested.		
15.	WCP	Fuzing selector	OFF
16.	WCP	Patching	OFF
17.	ACFT	Weight on wheels wedge	Removed
18.	WCP	TEST ASMB button	Pressed & Released
			#1 and #2 Test lamps off during test.
19.	SCP	#1 and #2 Arm Master	OFF
20.	Remove external power from aircraft.		
21.	Place Anti Coll switch to OFF.		
22.	Place battery switches to CFF.		
23.	Perform Postcheck Procedures (paragraph 4-44) if no other checks are to be performed.		

#### 4-36. AIRCRAFT GUN (ADEN 30MM) SYSTEM CHECK.

4-37. The following procedures are used to check the aircraft gun firing system and the functional operation of the gun purge doors. The firing circuit from the gun safety break to the gun firing pin/breech is not checked due to inaccessability when the gun pod is installed on the aircraft. Verification of this portion of the gun firing circuit must be performed prior to gun pod installation.

4-38. TEST EQUIPMENT REQUIRED. The following equipment is required:

1. Multimeter (AN/PSM-4 or equivalent).
2. Weight on wheels wedge.

4-39. TEST PREPARATION. (figure 4-6) Proceed as follows:

1. Complete aircraft preparation procedures. Refer to paragraph 4-12.
2. Remove pod center section access panels.
3. Remove pod rear fairing, center lower fairings.
4. Remove ammunition boxes and gun feed mechanisms.

5. Gun firing cables connected.

6. Ensure ammunition is not in the gun chambers and not available to the guns.

#### WARNING

Prior to applying power, cockpit switches and controls must be ready to receive power.

#### CAUTION

Aircraft battery switches must be on prior to and with external power applied to the aircraft to prevent damage to aircraft electrical system.

7. Place battery switches to ON.

8. Apply external power to the aircraft.

9. Place Anti Coll switch located on the cabin port aft console panel to ON.

10. Press DC Reset button. Check that anti collision lights are flashing.

11. Proceed to table 4-9.



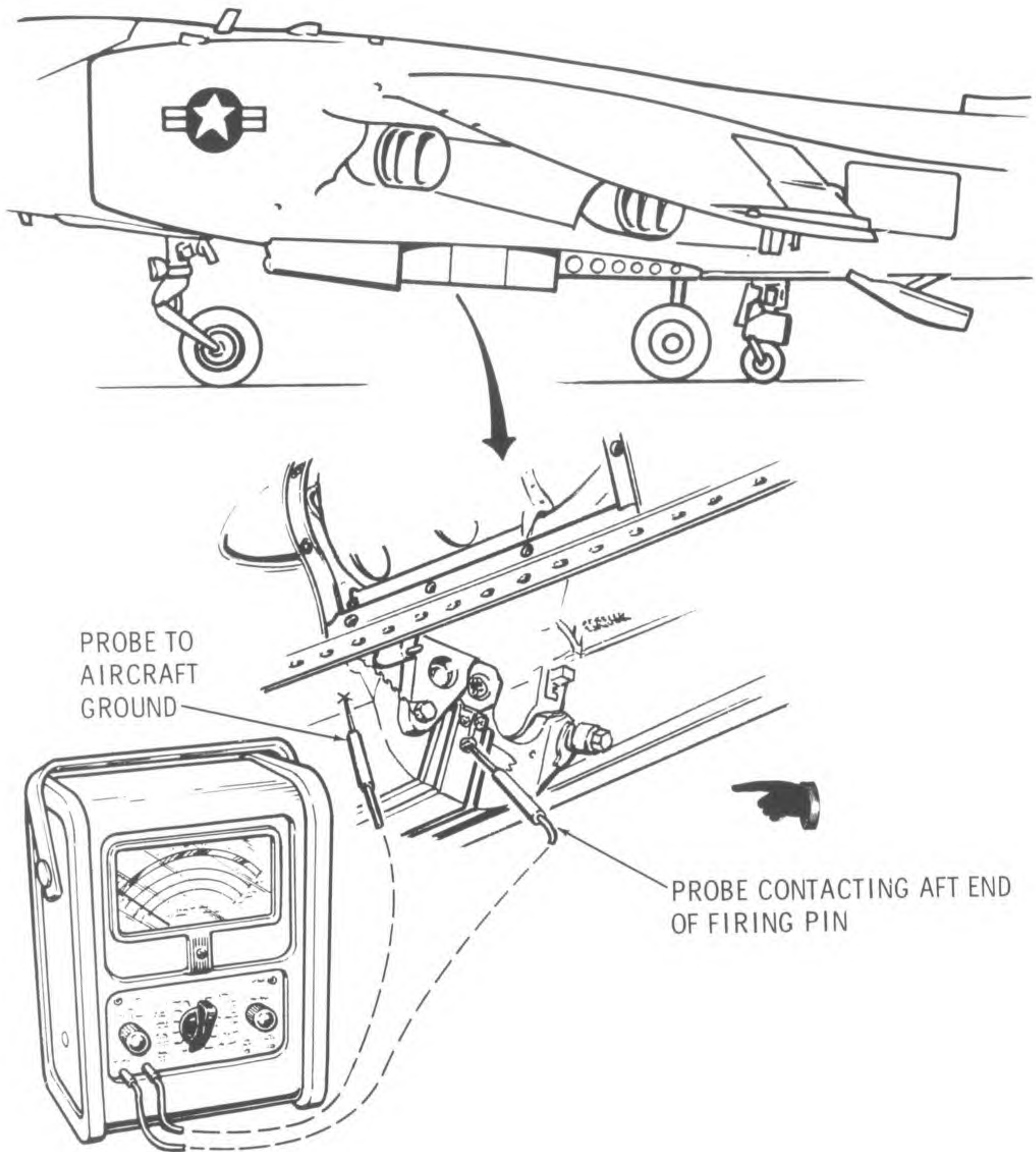


Figure 4-6. Gun System Connection



Table 4-9. Aircraft Gun System Check

Multimeter - TS

Weapon Control Panel - WCP

Sidewinder Control Panel - SCP

Aircraft - ACFT

Pilots Flight Control Stick - PFCS

STEP	OPERATION		INDICATION
	SWITCH/ITEM	POSITION/ACTION	
1.	ACFT	Weight on wheels wedge Installed	
2.	SCP	#1 and #2 Arm Master ON	
NOTE			
All lamp indications are on the WCP.			
3.	WCP	TEST ASMB button Press and Hold	Test lamps #1 and #2 come on
4.	WCP	TEST ASMB button Released	Test lamps go off
5.	Connect multimeter (AC scale) between gun firing pin and aircraft ground.		0 volts
6.	WCP	Gun selector ON	0 volts
7.	PFCS	Gun safety catch Released (armed)	0 volts; Gun purge door opens fully
8.	PFCS	Gun trigger Depressed	115VAC
9.	PFCS	Gun trigger Released	0 volts
10.	PFCS	Gun trigger Stowed	
11.	PFCS	Gun safety catch closed (SAFE)	Gun purge door closed
12.	WCP	Gun selector OFF	
13.	Repeat steps 5 through 12 for other gun.		
14.	Connect gun firing cables.		
15.	ACFT	Weight on wheels wedge Removed	
16.	WCP	TEST ASMB button Pressed and Released	#1 and #2 Test lamps off during test
17.	SCP	#1 and #2 Arm Masters OFF	
18.	Remove external power from aircraft		
19.	Place Anti Coll switch to OFF		
20.	Place battery switches to off		
21.	Perform Postcheck Procedures (paragraph 4-44) if no other checks are to be performed		



4-40. AIM-9 (SIDEWINDER) SYSTEM CHECK.

4-41. The following procedures and equipment are required to check the aircraft AIM-9 (Sidewinder) system with the LAU-7 missile launcher installed on the aircraft. The check procedures test the Side-winder control, firing, missile tone and nitrogen cooling functions.

4-42. TEST EQUIPMENT REQUIRED. The following equipment is required:

1. Test Set Guided Missile Launcher (TS-1436B/ASM-20) AN/ASM-20B.

2. N-T 40782 Adapter Plug P/N 1517359-1 for checking AIM-9B system only.

3. Headset radio.

4. Weight on wheels wedge.

4-43. TEST PREPARATION. (figure 4-7) Perform as follows:

1. Complete aircraft preparation procedures. Refer to paragraph 4-12.

2. Position test set SELECTOR SWITCH S1 to the OFF position, the MISSILE IDENT (ID) SWITCH S2 to 1R if checking the AIM-9D/G/H missile system or to 1 and 1A if checking the AIM-9B missile system.

3. Connect the test set to the LAU-7 missile launcher as follows:

a. Rotate the LAU-7A series launcher safety pin to raise the aft detent lug, insert the AN/ASM-20B test set in the rail, slide forward and release the

safety pin. Visually check engagement of detent and hanger.

b. If testing the AIM-9B missile system connect test set cable W3 between the test set and the adapter plug N-T 40782 (P/N 1517359-1) then attach the N-T 40782 adapter plug to the LAU-7 umbilical connection.

4. If testing the AIM-9D/G/H missile system, connect test set cable W1 between the test set and the LAU-7 umbilical connection.

5. Establish ground cockpit communications (figure 4-8).

WARNING

Prior to applying power, cockpit switches and controls must be ready to receive power.

CAUTION

Aircraft battery switches must be on prior to and with external power applied to the aircraft to prevent damage to aircraft electrical system.

6. Place battery switches to ON.

7. Apply external power to the aircraft.

8. Place Anti Coll switch located on the cabin port aft console panel to ON.

9. Press DC Reset button. Check that anti collision lights are flashing.

10. Proceed to tables 4-10 and 4-11.



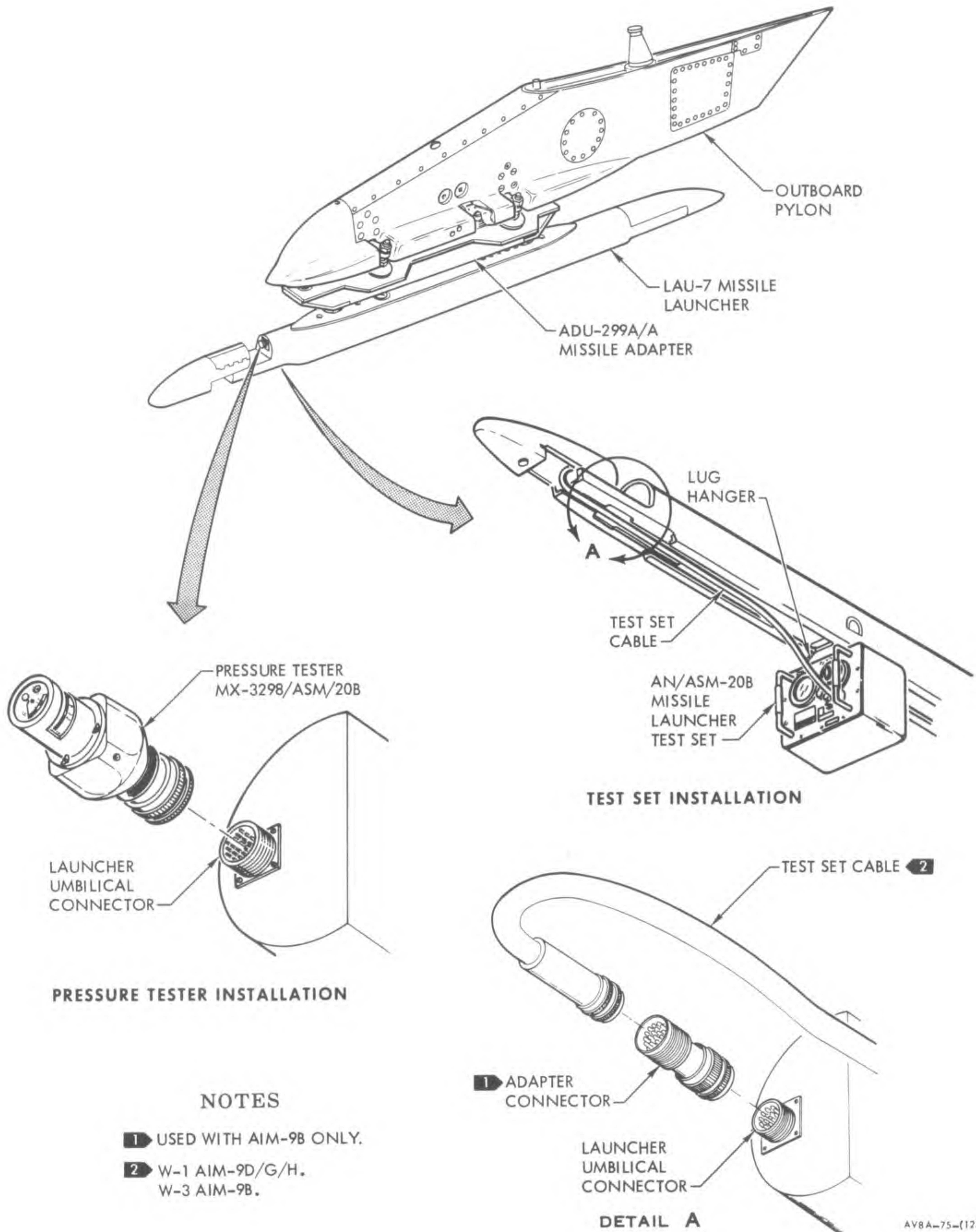
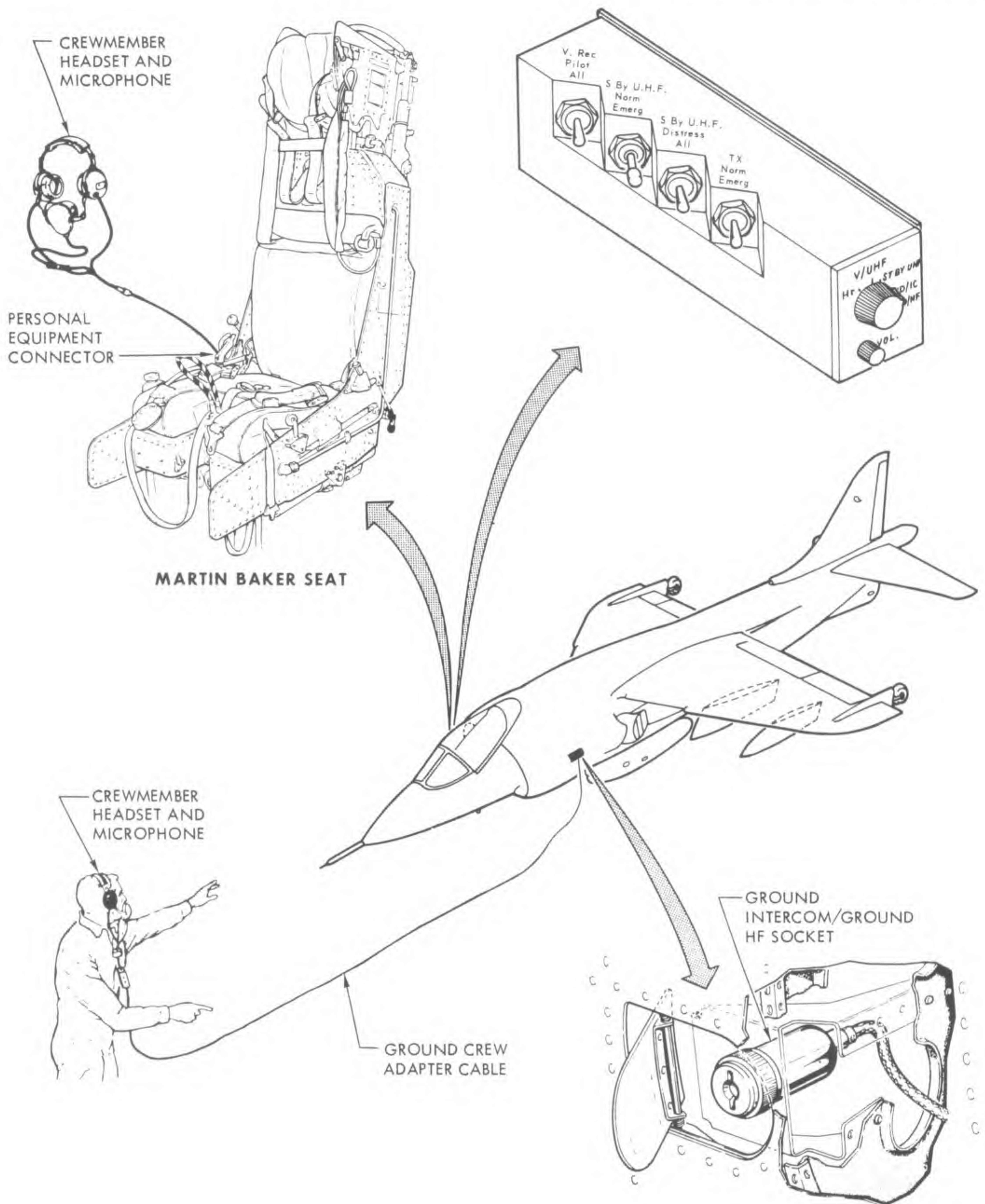


Figure 4-7. LAU-7 Guided Missile Launcher Test Connection Using AN/ASM-20B





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Figure 4-8. Intercommunication Connections Ground/Cockpit



Table 4-10. AIM-9B (Sidewinder) System Check

AN/ASM-20B - TS  
AIRCRAFT - ACFT

STEP	OPERATION		INDICATION (All indications at test set meter, except as noted)	FUNCTION
	SWITCH/ITEM	POSITION/ACTION		
1.	ACFT	Weight on wheels wedge	Installed	
2.	ACFT	#2 Arm Master	ON	
3.	TS	SELECTOR	OFF	
NOTE				
Test set pilot lamp remains on in all test set selector switch S1 positions except OFF.				
4.	ACFT	Bombs/Rockets/ Sidewinder	Sidewinder J (jettison) lamp - ON; Station Select lamp - OFF	Power Interlock
CAUTION				
To prevent test set damage, do not leave test set selector switch S1 in any position other than OFF for more than 5 minutes.				
5.	TS	SELECTOR	6 Pilot lamp ON	Missile B+, +175 VDC
6.	ACFT	Lock on/Reject	Select YELLOW; Sidewinder lamp ON; Station to be tested (3 or 4)	
7.	TS	SELECTOR	7 YELLOW	AGC Disable B+, +175 VDC
8.	TS	SELECTOR	8 YELLOW	Motor Drive B+, +175 VDC
9.	TS	SELECTOR	9 YELLOW	Motor Drive Filament +25.2 VDC
10.	TS	SELECTOR	10 YELLOW	Missile filament +25.2 VDC
11.	TS	SELECTOR	11 YELLOW	Servo heat +28 VDC
12.	TS	SELECTOR	12 YELLOW	Disable B+, +175 VDC
13.	TS	SELECTOR	13 YELLOW, Tone in radio headset	Audio and 115 vac
14.	ACFT	AURAL TONE CONTROL	Vary volume control knob Radio headset tone volume varies	
15.	TS	SELECTOR	14 YELLOW, Radio headset tone ceases	Igniter contact non short
16.	TS	SELECTOR	15 YELLOW	Uncage relay closed
17.	ACFT	Bomb/rp safety flap	Raised	
18.	ACFT	Bomb/rp button	Press and hold BLACK	Uncage relay open



Table 4-10. AIM-9B (Sidewinder) System Check (Continued)

STEP	OPERATION		INDICATION (All indications at test set meter, except as noted)	FUNCTION
	SWITCH/ITEM	POSITION/ACTION		
19.	TS	SELECTOR 17	RED	Gas grain
20.	ACFT	Bomb/rp button Release, Safety Flap remains raised	BLACK	
21.	ACFT	Reject/Lock - ON Reselect	Sidewinder station lamp on for station under test	
22.	TS	SELECTOR 19	BLACK	Fuze safe
23.	TS	SELECTOR 21	BLACK	Propulsion safe
24.		Safety pin Remove	RED	Propulsion
25.	TS	SELECTOR 19	RED	Fuze Firing
26.	TS	SELECTOR 21	RED	
27.	ACFT	Bomb/rp safety flap Lowered	BLACK	Propulsion safe
28.	ACFT	J (Sidewinder Jettison) Press and hold	RED	
29.	ACFT	J (Sidewinder Jettison) Release	BLACK	
30.	ACFT	Bomb/rp safety flap Raised		
<u>CAUTION</u>				
Test set upper knob must be in OFF before placing lower knob in any position other than OFF.				
31.	TS	SELECTOR 23	BLACK	G & C zero voltage
32.	TS	SELECTOR 24	BLACK	Gas grain zero voltage
33.	TS	SELECTOR 27	BLACK	PCO and fuze zero voltage
34.	TS	SELECTOR 28	BLACK	Propulsion zero voltage
35.	TS	SELECTOR 29	YELLOW	Zero voltage test
36.	TS	SELECTOR OFF	Pilot, light off. Station lamp OFF	
37.	ACFT	Bomb/rp safety flap Lowered		
38.	ACFT	Weight on wheels wedge Removed	Sidewinder J (Jettison) lamp - OFF	
39.	ACFT	#1 and #2 Arm Master OFF		



Table 4-10. AIM-9B (Sidewinder) System Check (Continued)

STEP	OPERATION		INDICATION (All indications at test set meter, except as noted)	FUNCTION
	SWITCH/ITEM	POSITION/ACTION		
40.	ACFT	Bombs/Rockets/ Sidewinder	Bombs/Rockets	
41.	TS	SELECTOR	1	
42.	ACFT	Ground Test	Test	Sidewinder Station lamp - ON
43.	ACFT	Ground Test	NORM (Cover down)	Station lamp - OFF
44.	Repeat steps 1 through 43 for other station.			
45.	Remove external power from aircraft.			
46.	Place Anti Coll switch to OFF.			
47.	Place battery switches to off.			
48.	Perform Postcheck Procedures (paragraph 4-44) if no other checks are to be performed.			

Table 4-11. AIM-9D/G/H System Check

STEP	OPERATION		INDICATION (All indications at test set meter, except as noted)	FUNCTION
	SWITCH/ITEM	POSITION/ACTION		
1.	ACFT	Weight on Wheels Wedge	Installed	
2.	ACFT	#2 Arm Master	ON	
3.	TS	SELECTOR	OFF	
NOTE				
Test set pilot lamp remains on in all test set selector switch S1 positions except OFF.				
4.	ACFT	Bombs/Rockets/ Sidewinder	Sidewinder	J (Jettison) lamp - ON; Station Select lamp - OFF
CAUTION				
To prevent test set damage, do not leave test set selector switch S1 in any position other than OFF for more than five minutes.				
5.	TS	SELECTOR	6	Pilot Lamp - ON Missile B+, +175VDC
6.	ACFT	Lock-on/Reject	Select	YELLOW; Sidewinder lamp ON; Station to be tested (3 or 4)
7.	TS	SELECTOR	10	YELLOW Missile filament +25.2 VDC



Table 4-11. AIM-9D/G/H System Check (Continued)

STEP	OPERATION		INDICATION (All indications at test set meter, except as noted)	FUNCTION	
	SWITCH/ITEM	POSITION/ACTION			
8.	TS	SELECTOR	11	YELLOW	Servo heat +28 VDC
9.	TS	SELECTOR	12	YELLOW	Disable B+, +175 VDC
10.	TS	SELECTOR	13	YELLOW, Tone in radio headset	Audio and 115 vac
11.	ACFT	AURAL TONE	Vary volume control knob	Radio headset tone volume varies	
12.	TS	SELECTOR	15	YELLOW, Radio headset tone ceases	Uncage relay closed
13.	ACFT	SCAN	ON	BLACK	
14.	ACFT	SCAN	OFF	YELLOW	Uncage relay open
15.	ACFT	Bomb/rp safety flap	Raised		
16.	ACFT	Bomb/rp button	Press and hold	BLACK	Uncage relay open
17.	TS	SELECTOR	17	RED	Gas grain
18.	ACFT	Bomb/rp button	Release Safety Flap remains raised	BLACK	
19.	ACFT	Reject/Lock-on	Reselect	Sidewinder station lamps on for station under test	
20.	TS	SELECTOR	18	RED	Launch latch
21.	TS	SELECTOR	20	RED	Power change over and fuze
22.	TS	SELECTOR	21	BLACK	Propulsion safe
23.		Safety pin	Remove	RED	Propulsion
24.	ACFT	Bomb/rp safety flap	Lowered	BLACK	
25.	ACFT	J (Sidewinder Jettison)	Press and hold	RED	
26.	ACFT	J (Sidewinder Jettison)	Release	BLACK	
27.	ACFT	Bomb/rp safety flap	Raised		
28.	TS	SELECTOR (AIM-9H)	22	RED	Propulsion



Table 4-11. AIM-9D/G/H System Check (Continued)

STEP	OPERATION		INDICATION (All indications at test set meter, except as noted)	FUNCTION	
	SWITCH/ITEM	POSITION/ACTION			
CAUTION					
Test set upper knob must be in OFF before placing lower knob in any position other than OFF.					
29.	TS	SELECTOR	23	BLACK	G & C zero voltage
30.	TS	SELECTOR	24	BLACK	Gas grain zero voltage
31.	TS	SELECTOR	25	BLACK	Launch latch zero volt- age
32.	TS	SELECTOR	27	BLACK	PCO and fuze zero volt- age
33.	TS	SELECTOR	28	BLACK	Propulsion zero voltage
34.	TS	SELECTOR	29	YELLOW	Zero voltage test
35.	TS	SELECTOR	30	BLACK	Intercept Arm stray voltage
36.	ACFT	SCAN	ON		
37.	TS	SELECTOR	32	RED	Seam scan amp
38.	TS	SELECTOR	37	YELLOW	Seam R-1 input
39.	TS	SELECTOR	40	BLACK	Acquisition Lambda stray voltage
40.	TS	SELECTOR	42	RED	Seam Lambda input
41.	TS	SELECTOR	OFF	Pilot lamp - OFF; BLACK; station lamp - OFF	
42.	ACFT	Bomb/rp safety flap	Lowered		
43.	ACFT	SCAN	OFF		
44.	ACFT	Weight on Wheels Wedge	Removed	J (Sidewinder Jettison) lamp - OFF	
45.	ACFT	#1 and #2 Arm Master	OFF		
46.	ACFT	Bombs/Rockets/ Sidewinder	Bombs/Rockets		
47.	Disconnect/transfer AN/ASM-20B, to other station to be checked.				
AIM-9 PRESSURE CHECK					
48	Connect pressure tester MX-3298/ASM- 20B to launcher forward connector			0 pressure.	



Table 4-11. AIM-9D/G/H System Check (Continued)

STEP	OPERATION		INDICATION (All indications at test set meter, except as noted)	FUNCTION
	SWITCH/ITEM	POSITION/ACTION		
49.	ACFT	Ground Test	TEST	Tester indicates same as nitrogen bottle.
50.	ACFT	Ground Test	NORM (Cover down)	
51.	Disconnect pressure tester MX-3298.			
52.	Repeat steps 1 through 51 for each station to be tested.			
53.	Remove external power from aircraft.			
54.	Place Anti Coll switch to OFF.			
55.	Place battery switches to off.			
56.	Perform Postcheck Procedures (paragraph 4-44) if no other checks are to be performed.			

#### 4-44. POSTCHECK PROCEDURES.

4-45. The following Postcheck Procedures must be performed at the completion of any part of the Release and Control system checks to assure the aircraft is returned to a safe condition.

1. Ensure that the aircraft is grounded.
2. Install ARMAMENT SAFETY KEY in aircraft.
3. Install safety pins in all stations with stores installed.
4. Ensure that ammunition is not in the guns and that no ammunition is available to the guns.
5. Ensure that gun firing cables are connected at the gun break.
6. Position the COCKPIT and ARMAMENT CONTROL switches as follows:
  - a. ARM MASTERS #1 and #2 to OFF.
  - b. SIDEWINDER GROUND test switch to NORM with cover down.
  - c. Seam SCAN switch to OFF.
  - d. The BOMBS/ROCKETS/SIDEWINDER switch to BOMBS/ROCKETS.
  - e. Both GUN SELECTOR switches to OFF.
  - f. All STATION SELECTOR switches to OFF.

g. The FUZING SELECTOR switch to OFF.

h. All PATCHING switches to OFF.

i. The AUTO/MANUAL switch to MANUAL.

j. The SINGLE/DOUBLE switch to S.

k. On the control stick grip assure that the bomb/rp safety flap is lowered and the gun trigger is stowed with the gun safety catch in the safe position.

l. Connect the pilots display record (HUD camera) cable.

m. All other switches are OFF, SAFE, or NORMAL.

#### CAUTION

Aircraft battery switches must be on prior to and with external power applied to aircraft to prevent damage to aircraft electrical system.

7. Ensure external power is removed from the aircraft.

8. Ensure Anti Coll switch is OFF.

9. Ensure the battery switches are OFF.

10. Remove tools and test equipment from the area.

11. Report aircraft status to proper authority.







SECTION V  
COMMON PROCEDURES

5-1. INTRODUCTION.

5-2. This section contains procedures which are common to more than one weapon or store loading procedure and must be performed to complete a safe and reliable load. These procedures will be referenced in other sections of the manual. Common procedures are presented once in this section to avoid repetition.

5-3. AIRCRAFT PREPARATION.

5-4. The following procedures are common to all weapon system preparations for loading.

1. Check that cockpit armament switches are positioned in accordance with table 5-1 (figures 5-1 through 5-4).

2. Ground aircraft with a low resistance conductor connected between aircraft grounding point and an approved common ground (figure 5-5). The use of tie-down chains to provide aircraft ground is authorized and is preferred over the use of grounding straps or wires. The tie-down chains, grounding strap or wire must be attached to an unpainted surface of the aircraft and to a certified ground eyelet or a common static earth ground.

3. Ensure all assumptions in paragraph 1-22 have been complied with.

4. Check that the ballistic plug position, patching switches and store type indication is installed in accordance with table 5-2.



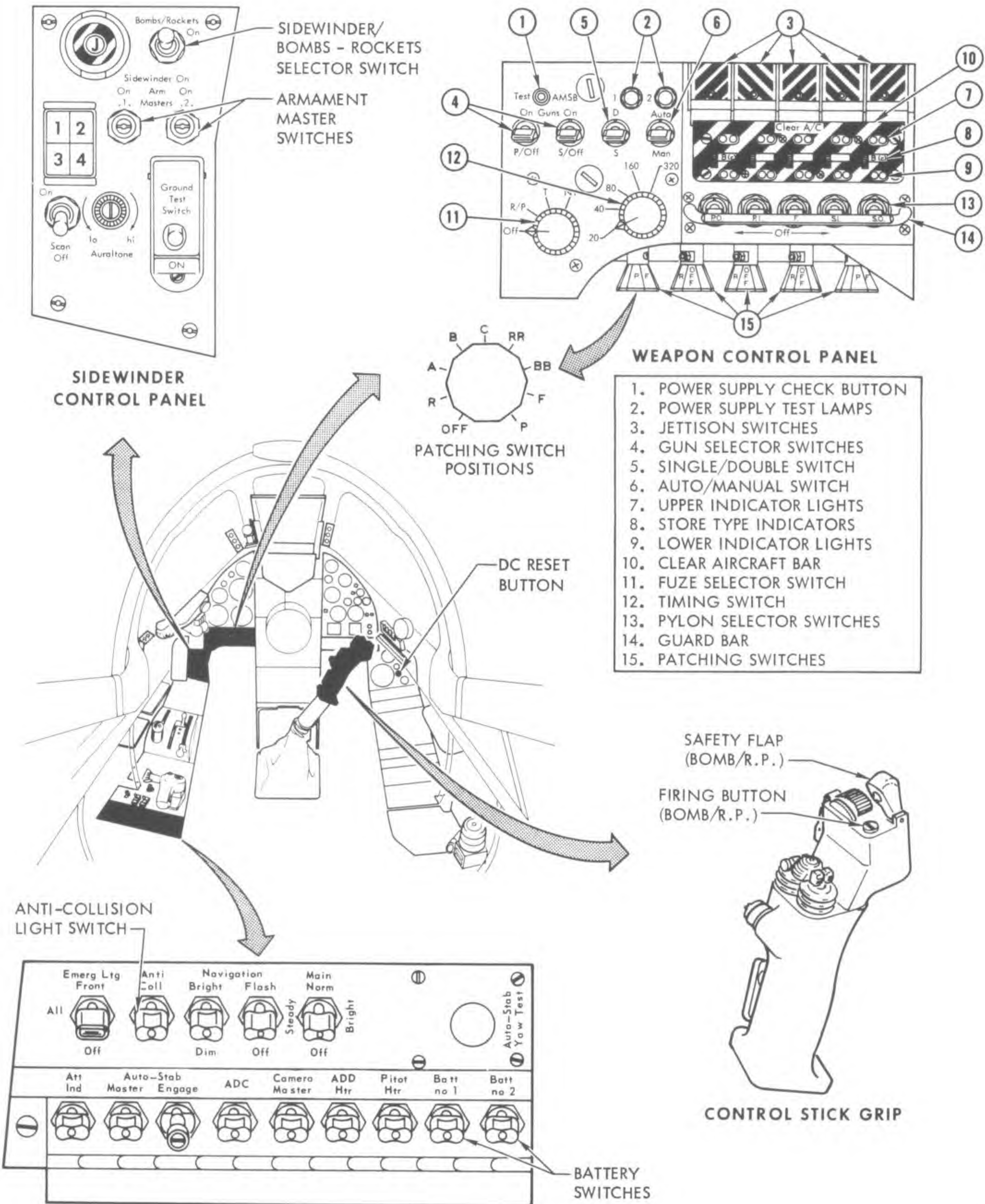
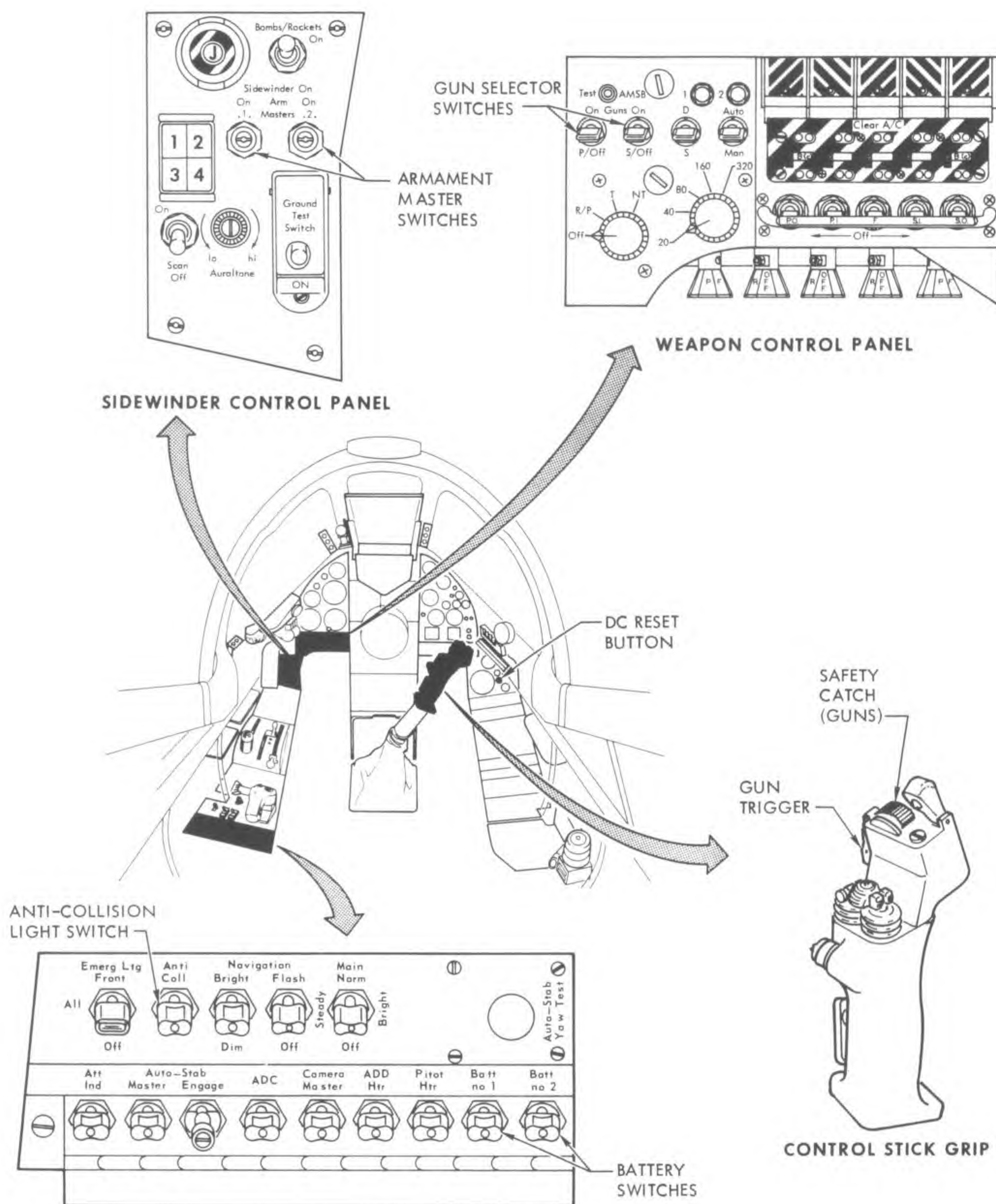


Figure 5-1. Bomb/Rocket Control Panel Location

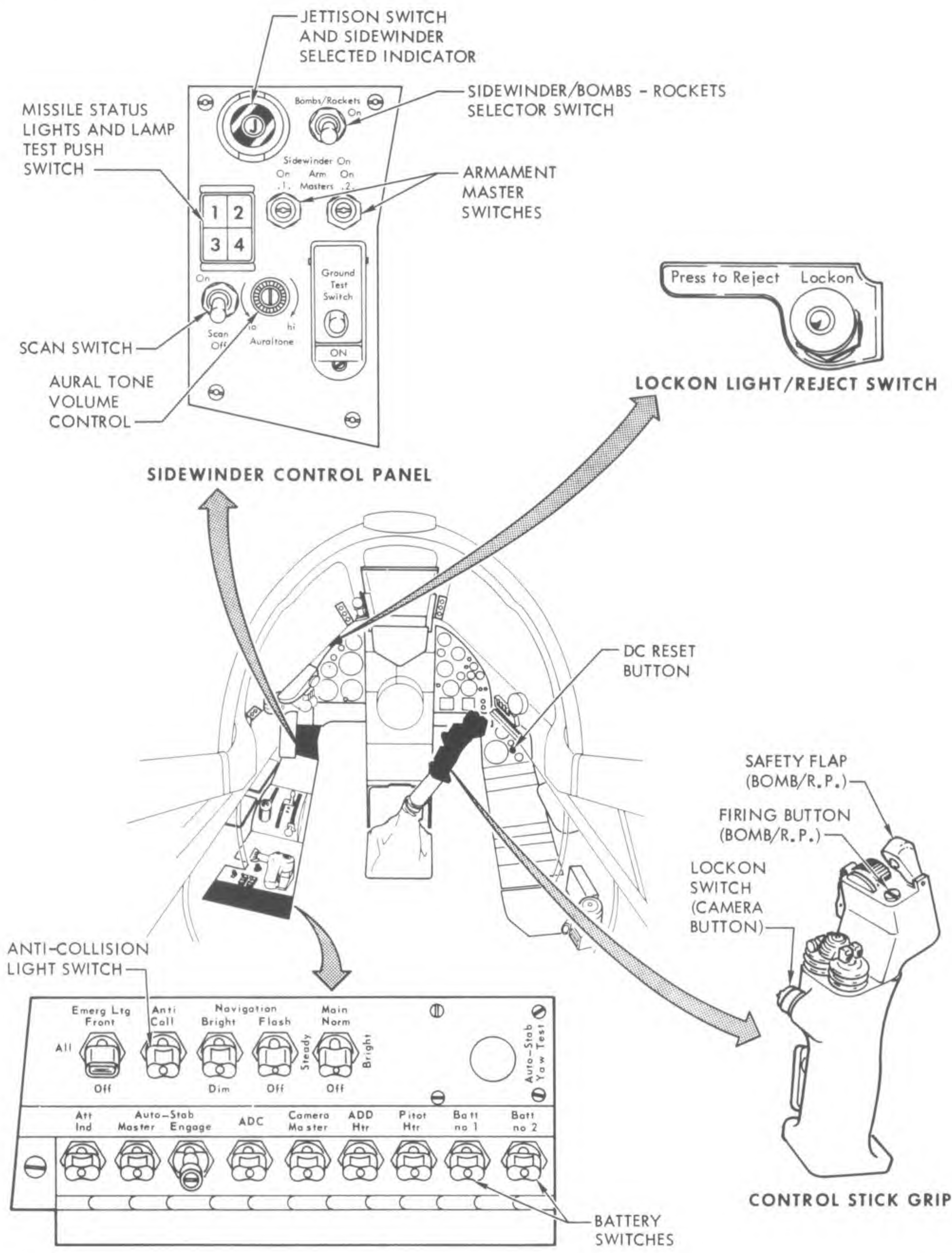




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Figure 5-2. Aden 30MM Gun Control Panel Location





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Figure 5-3. Missile Control Panel Location



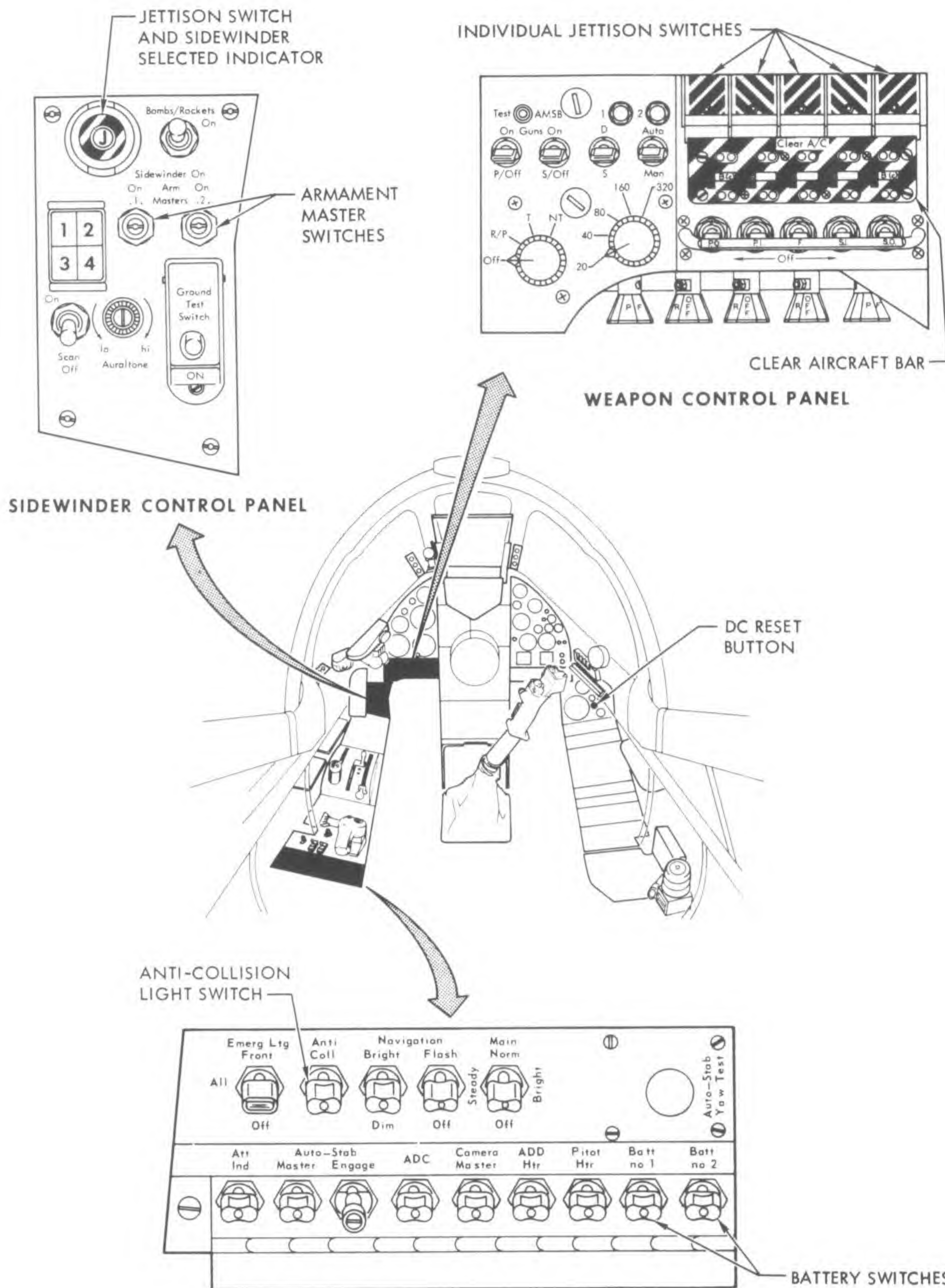


Figure 5-4. Jettison Control Panel Location



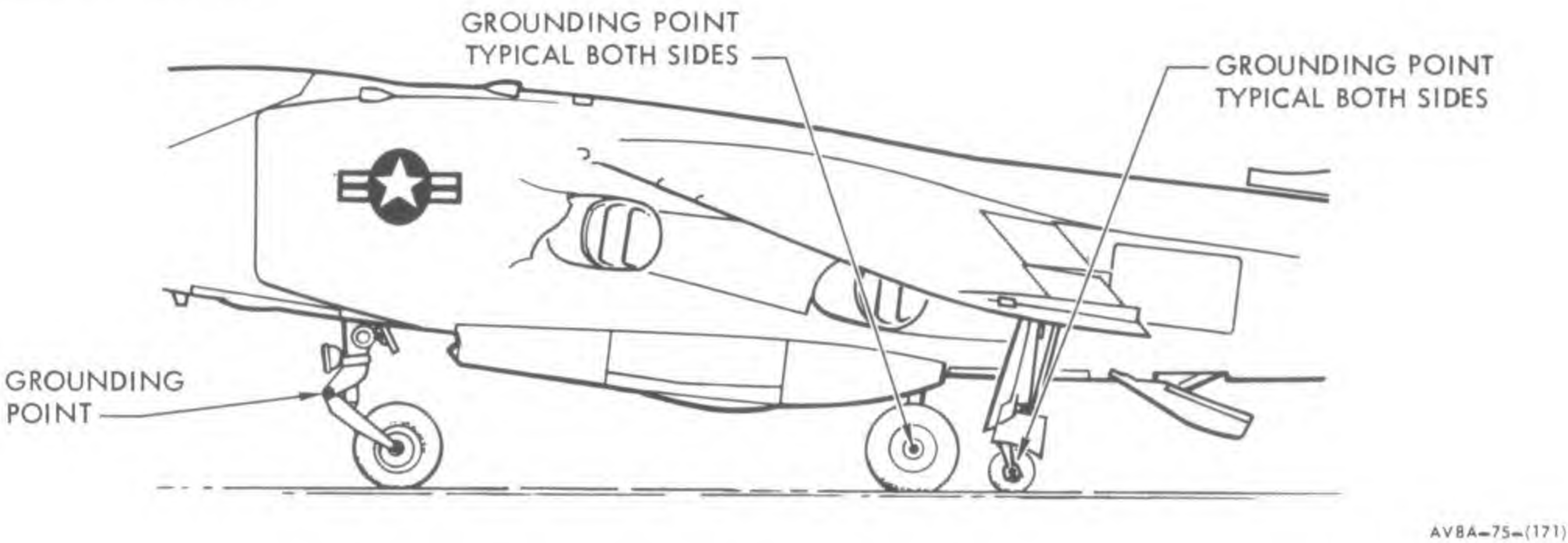


Figure 5-5. Aircraft Ground (Typical)

Table 5-1. Cockpit Switch Position

PANEL	SWITCH		POSITION
Cabin Aft Console	Batt no 1	Batt no 2	OFF
Weapon Control Panel	Guns		OFF
Weapon Control Panel	Pylon selector		OFF
Weapon Control Panel	Fuzing Selector		OFF
Weapon Control Panel	D / S		S
Weapon Control Panel	Auto/Man		Man
Flight Control Grip	Bomb/rp Switch		Safety flap lowered
Flight Control Grip	Gun Trigger		(SAFE) and (Stowed)
Sidewinder Control Panel	Jettison Button		OUT
Sidewinder Control Panel	Arm Masters		OFF
	1	2	
Sidewinder Control Panel	Bombs/Rockets Sidewinder		Bombs/Rockets
Sidewinder Control Panel	Ground Test		NORM
Sidewinder Control Panel	Scan		OFF
Sidewinder Control Panel	Aural tone		lo
Cabin aft console	Anti Coll		OFF



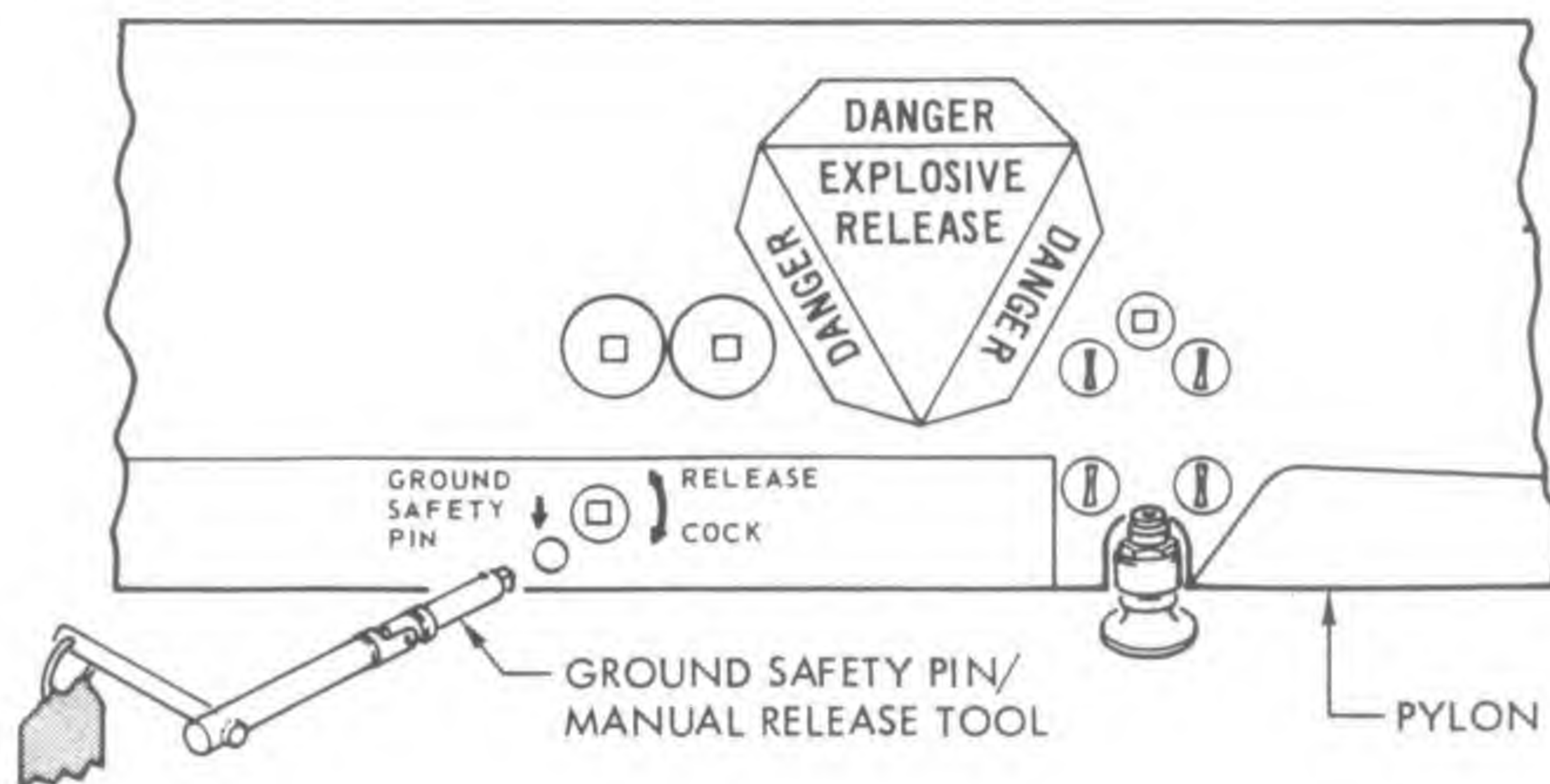
Table 5-2. Ballistics Box Positions, Patching Selections and Store Type Indicator

TYPE OF STORE	BALLISTICS BOX POSITION	PATCHING SWITCH SELECTION	STORE TYPE INDICATOR
MK 106 Practice Bomb	B Only	P	B(r)
MK 76 Practice Bomb	B Only	P	B(ff)
MK 81 LDGP Bomb	A, B, or C	A, B, or C	B(ff)
MK 82 LDGP Bomb	A, B, or C	A, B, or C	B(ff)
MK 83 LDGP Bomb	A, B, or C	A, B, or C	B(ff)
2.75" Rockets	A Only	R	R/P
ZUNI Rockets	A Only	R	R/P
MK 81 Retard Bomb	A, B, or C	A, B, or C	R(r)
MK 82 Retard Bomb	A, B, or C	A, B, or C	R(r)
Cluster Weapons	A, B, or C	A, B, or C	B(c)
Firebombs	A, B, or C	A, B, or C	F/B
SUU-40/44	N/A	R	B(r)
Sidewinder (AIM-9B/D/G/H)	N/A	OFF	BLANK
Fuel Tanks	N/A	F	FUEL

NOTE: If position C in the ballistics box is to be used, ensure that the Ballistics plug is inserted upside down.

The patching switch selection must agree with the ballistics box position used or the pilot will not receive correct aiming inputs in the HUD.





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Figure 5-6. Ground Safety Pin for Pylon

#### 5-5. ACCESSORY AND STORE PREPARATION/INSPECTION.

5-6. The following procedures are presented to accomplish functions which are common to loading and unloading operations in other sections of this manual.

5-7. CARTRIDGE REQUIREMENTS. Two MK 125 MOD 0 cartridges are required for outboard, in-board and centerline pylons.

5-8. PYLON PREPARATION AND INSPECTION. Inspect as follows:

1. Ensure pylon safety pin is installed (figure 5-6).
2. Ensure pylon cartridges are removed as required.
3. Ensure electrical connectors are properly connected.

#### 5-9. STRAY VOLTAGE CHECK.

5-10. The checks must be performed prior to electrical connection of all rocket launchers.

Table 5-3. Special Test Equipment

<u>EQUIPMENT</u>	<u>PART NUMBER</u>
Aircraft Firing Test Set	AN/AWM-54
Armament Firing Circuit Test Set	TS-2875A/AWM

5-11. Prior to commencing stray voltage check, verify that the following has been accomplished:

- Aircraft positioned in designated area.
- Aircraft engine turning.
- Generators on the line.
- External power removed.
- Trim cycled and set for launch/takeoff.
- All electrical switches and equipment requiring electrical power set in normal launch/takeoff position.
- Pilot places both hands in full view and hands remain in view during entire check.

Figure 5-7. Deleted.

Figure 5-8. Deleted.

Figure 5-9. Deleted.

#### 5-12. TS-2875A/AWM STRAY VOLTAGE TEST PROCEDURES.

1. Perform self-test on stray voltage test set (TS-2875A/AWM) as follows:

#### NOTE

Prior to and following the use of this test set for checking any armament circuit, a self-test shall be performed to ensure that the test set is functioning properly.

- a. Connect tester electrical lead to test receptacle on tester.
- b. Simultaneously depress STRAY VOLTAGE (S.V.) and SELF-TEST SWITCHES on the test set. Meter pointer must indicate in the SELF TEST area of the dial to indicate that the test set is operating satisfactorily.
- c. Release S.V. and SELF-TEST switches.
- d. Disconnect electrical lead from test receptacle on the test set.

#### 5-13. TS-2875A/AWM ARMAMENT CIRCUIT STRAY VOLTAGE TEST. Perform as follows:

1. Upon completion of satisfactory test set operation, proceed with armament circuit test as follows:
  - a. Connect stray voltage test set cable to the pylon SNEB rocket connector. Do not actuate either of the test switches at this time.



### WARNING

If meter indicates outside green (GO), disconnect the test set from the circuit under test and notify proper authority.

b. Observe the meter pointer. Any movement of the meter pointer indicates a hazardous condition. Disconnect the test set from the circuit under test; discontinue testing until the cause of the unsatisfactory condition is located and corrected.

### CAUTION

Do not depress (push) STRAY VOLTAGE (S.V.) SWITCH when any deflection of the meter pointer is noted.

c. If there is no meter pointer deflection, depress STRAY VOLTAGE (S.V.) SWITCH. The meter is now operating on the lower (S.V. DOWN) scale. Observe meter pointer. If there is no deflection, or if meter pointer stays within the green (GO) sector on the meter, the circuit is considered GO, or safe. If the meter pointer deflects beyond the green GO sector on the lower scale into the red NO GO sector of the lower scale, the circuit is NO GO or hazardous.

d. Disconnect the test set from pylon SNEB rocket connector and repeat self test to verify the test set is working properly.

5-13A. AN/AWM-54 STRAY VOLTAGE TEST PROCEDURES. Perform self test as follows:

#### NOTE

Prior to and following the use of this test set for checking any armament circuit, a self-test shall be performed to ensure that the test set is functioning properly.

1. Connect cable W-1 with adapter W-2 to test set J-1.
2. Position the FCTN switch to the NO-GO position.
3. Press and release the SELF TEST push button. The NO-GO (red) indicator will illuminate while the SELF TEST push button is depressed.
4. Position the FTCN switch to the GO position.
5. Press and release the SELF TEST push button. The GO (green) indicator will illuminate while the SELF TEST push button is depressed.

5-13B. AN/AWM-54 ARMAMENT CIRCUIT STRAY VOLTAGE TEST. Perform as follows:

1. Upon completion of satisfactory self test operation, proceed with stray voltage test as follows:
  - a. Position the FCTN switch to the S/V position.
  - b. Connect test set cable and adapter to the pylon SNEB rocket connector.
  - c. Press and hold the TEST push button.
  - d. Observe the test set indicators.

(1) A NO-GO (red) indication indicates a hazardous condition. Release the TEST button and disconnect the test set from the circuit under test; discontinue testing until the cause of the unsatisfactory condition is located and corrected.

(2) A GO (green) indication verifies that the circuit under test is go or safe. Release the TEST button and disconnect the test set from the SNEB rocket connector.

e. Perform a self test to verify the test set is working properly.

### 5-14. FUZING PROCEDURES.

#### WARNING

Consult Tactical Manual for authorized fuze/weapon combination.

### 5-15. GENERAL FUZE HANDLING AND SAFETY PRECAUTIONS.

1. The following procedures contain fuze illustrations, general procedures and precautions to be observed in handling of all bomb fuzes. Individual procedures for each fuze/device are as follows:

- a. MK 30 and MK 32 Arming Device (paragraph 5-17).
- b. MK 42 Firing Mechanism (paragraph 5-19).
- c. MK 346 Long-delay Tail Fuze (paragraph 5-21).
- d. MK 347 Mechanical Nose Fuze (paragraph 5-23).
- e. M904E2/E3 Mechanical Nose Fuze (paragraph 5-24).
- f. Procedures for fuzes/devices for CBU/Rockeye/Fire Bombs are contained in the respective sections.

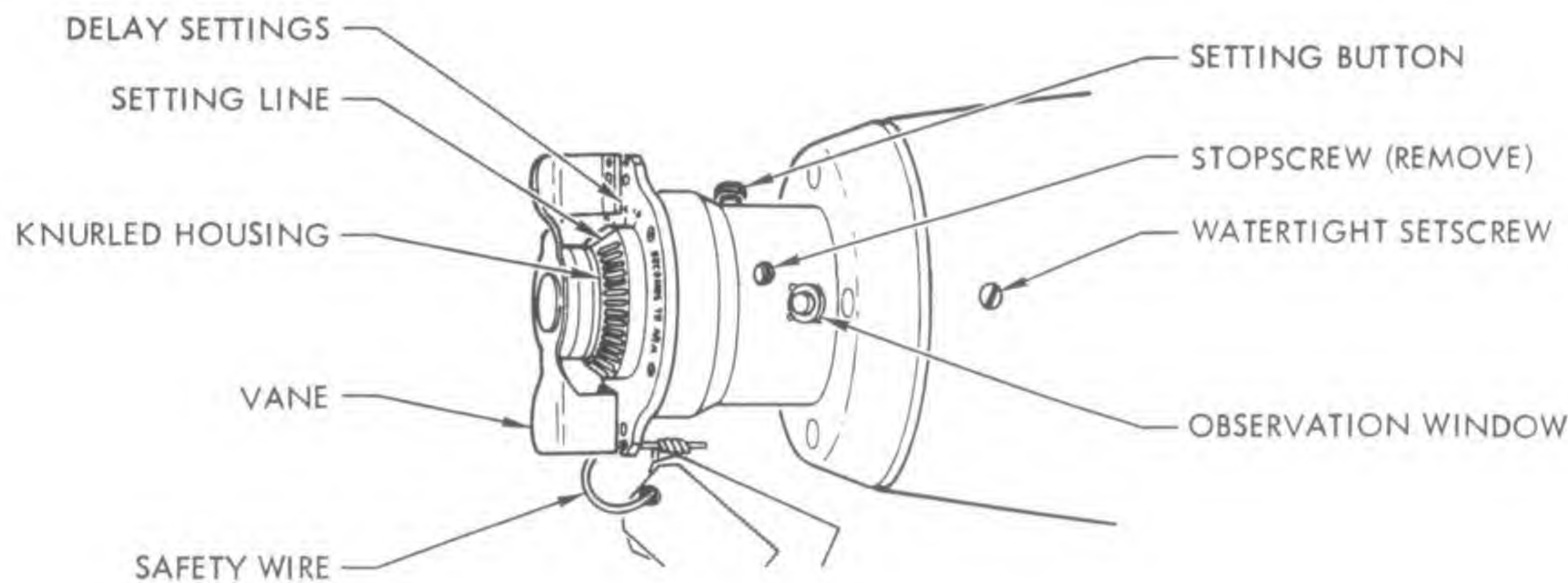
2. General arming wire information and detailed rigging instructions for various weapon/ejector rack unit combinations are contained in the Arming Wire Routing Tables.

3. For fuzes which are considered a part of an all-up-round or those which are normally installed prior to delivery of the weapon to the loading crew, only the inspection and arming wire installation procedures performed during aircraft loading are included. Installation procedures for these fuzes and more detailed description of all fuzes are contained in NAVAIR 11-5A-17.

4. The following handling and safety precautions apply to all fuzes and must be observed to ensure safety as well as reliable fuze operation.

- a. Fuzes contain high explosives and must be handled carefully. Take every precaution to prevent fuze damage. All fuzes must be maintained in a suitable handling container prior to installation and after removal.





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Figure 5-10. MK 30 MOD 0 Arming Device

b. Prior to installation in a weapon and as soon as possible after flight or aborted flight, fuzes must be inspected to ensure that they are in a safe or un-armed condition. In addition to items listed in individual fuze inspection procedures, inspect all fuzes for bent or deformed arming vanes, damaged or dirty threads, loose booster cups, missing or damaged components, and evidence of rust or corrosion.

c. Since most fuzes can be fully armed by turning the arming vane at any speed either by hand or by allowing it to windmill, a fuze must have either a safety pin/wire or an arming wire installed at all times to prevent arming.

#### WARNING

If arming wire/safety pin/wire or any component of fuze is missing or damaged, treat fuze as armed. Do not attempt to disarm or remove any fuze suspected of being partially or fully armed. Attempts to disarm a fuze by reverse rotation of arming vane can detonate the fuze. Notify proper authority immediately for removal and disposal.

d. Do not remove the safety pin(s)/wire from any fuze until after the arming wire is installed. Retain safety pins or other protective devices for use in the event weapons must be downloaded. A short length of arming wire with the ends twisted together securely may be used in place of a safety pin.

e. Use care when installing fuzes to prevent cross-threading.

f. Do not bend or deform the arming vanes of any fuze.

g. Except when specified, do not use tools for installation or removal of fuzes. Most fuzes are installed only hand tight.

h. To prevent handling damage, fuze must be installed after the weapon is loaded on the aircraft. Exceptions to this rule are only authorized for fuzes

which must be installed during weapon assembly and for those cases where bomb rack clearance will not permit fuzing after loading.

i. Fuzes must not be disassembled or tested for proper functioning. No attempt shall be made to repair any fuze or render any fuze inert.

j. If only a tail fuze is being used, a steel nose plug and support cup must be installed in nose of bomb.

#### 5-16. FUZE INSTALLATION.

5-17. MK30 AND MK 32 ARMING DEVICES (figures 5-10 and 5-11).

5-18. The MK30 and MK 32 arming devices are installed in the MK 36/40 destructor during weapon assembly. Installation and removal procedures are not included here. Only the procedures for inspection are included.

1. Arming Device Inspection. Inspect as follows:

#### WARNING

If arming wires and safety wire/pin are both missing from the arming device, the arming device must be considered armed. Notify proper authority immediately if an armed or partially armed condition is indicated.

#### CAUTION

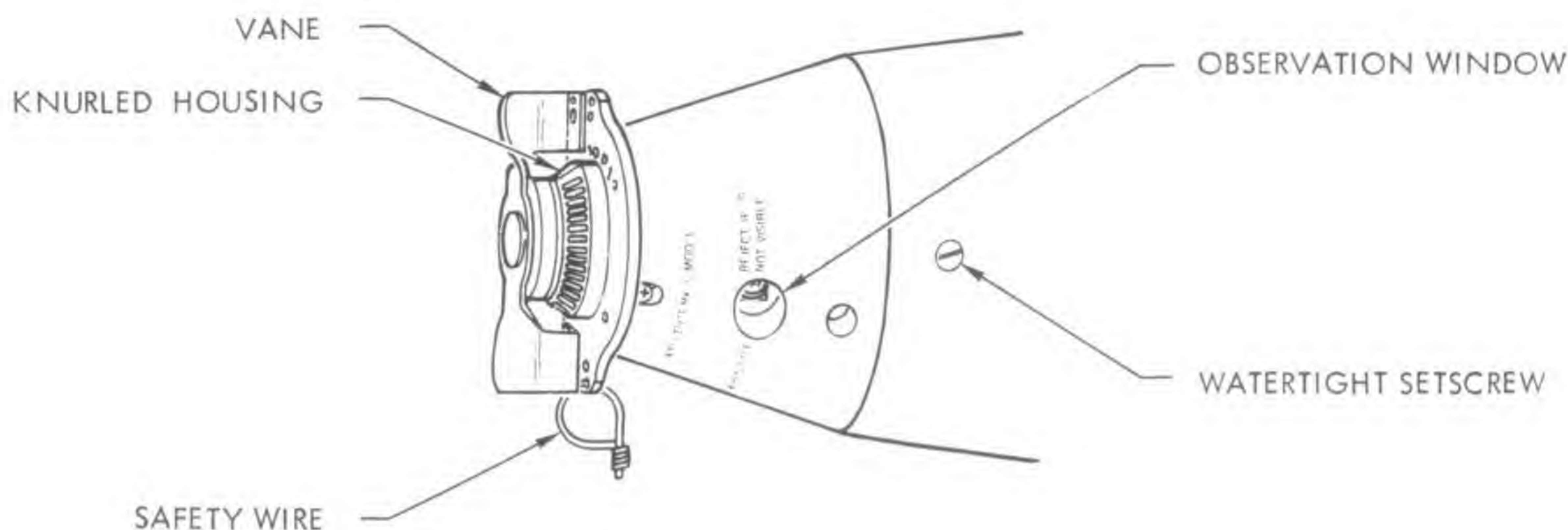
Under red-light condition, red appears light in color and green appears dark. Ensure proper color is observed.

a. MK 30 Arming Device Safety Inspection (figure 5-10).

(1) Safety wire installed through the arming vane and arming wire guide.

(2) Arming delay set at 2 seconds.





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Figure 5-11. MK 32 Arming Device

### WARNING

Full red in the observation window indicates a fully armed arming device.

If a white stripe appears in the observation window the arming device is partially armed.

(3) Observation window vacant.

(4) Stop screw in side of arming device removed.

b. MK 32 Arming Device Safety Inspection (figure 5-11).

### NOTE

Arming delay is preset. Arming delay setting check is not required.

(1) Safety wire installed in arming vane and arming wire guide.

### WARNING

Black letter "A" against red background in the observation window indicates a fully armed fuze.

If white "S" on green background is not fully visible in observation window or if a dull grey background appears in observation window, the fuze is partially armed.

(2) White "S" on green background visible in observation window.

### NOTE

If arming vane will touch the arming wire guide when pushed, the weapon must be rejected.

c. Press inward on nose housing. Ensure arming vane does not touch arming wire guide.

d. Water tight setscrew installed in setscrew hole in forward end of bomb body.

### 2. Arming Wire Installation.

a. Refer to arming wire routing figures for arming wire installation for specific destructor/ejector rack unit combinations.

b. Install two Fahnestock clips on each leg of arming wire.

c. Remove safety wire from arming device.

3. Postloading, Quality Assurance. Inspect for the following:

a. Arming wires properly installed.

b. Safety wire removed.

### 5-19. MK 42 FIRING MECHANISM.

5-20. The MK 42 firing mechanism is installed in the MK 36/MK 40 destructor during weapon assembly. Installation and removal procedures are not included here.

1. Perform the following procedures.

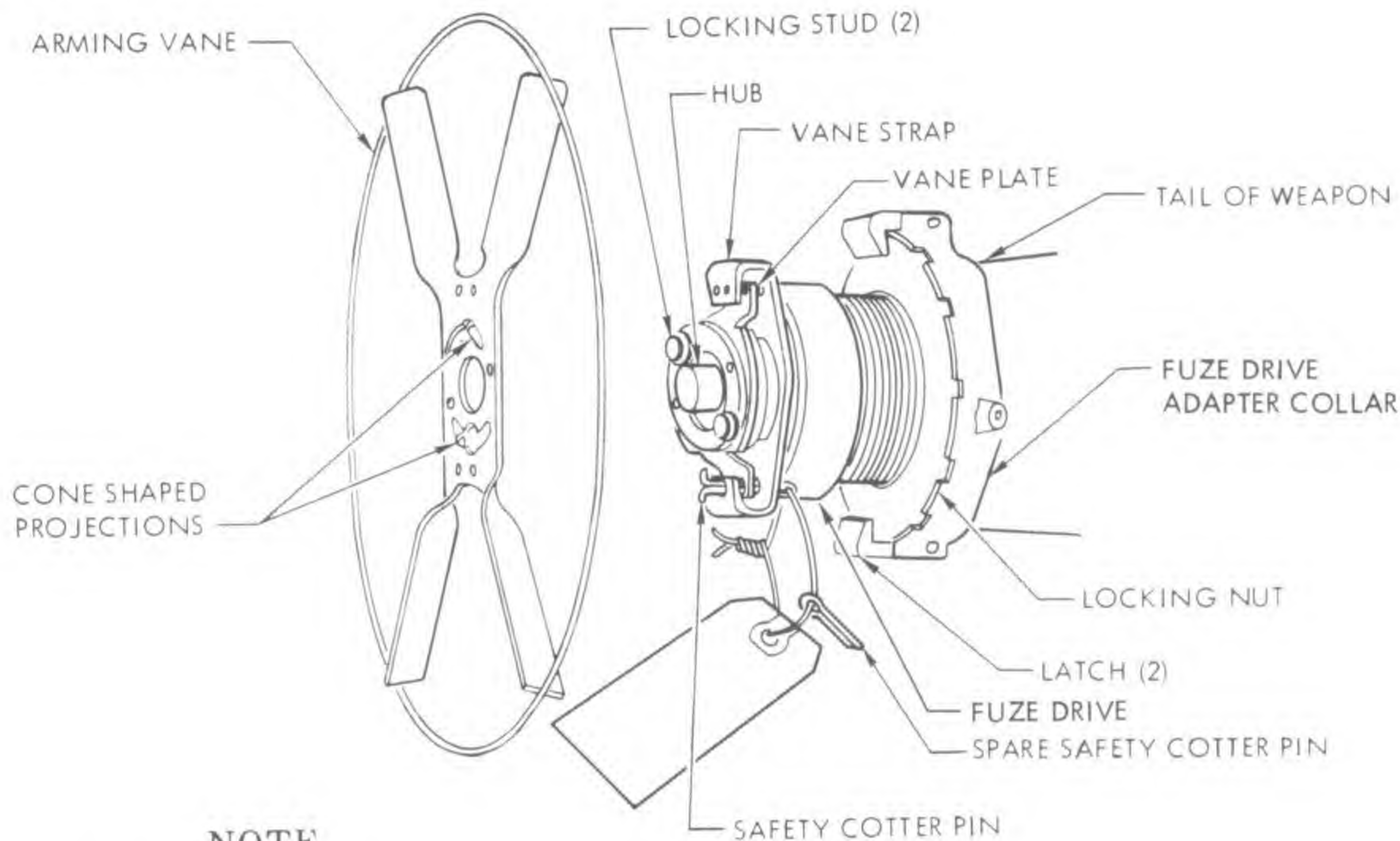
### WARNING

If arming wire and safety pin are missing from the firing mechanism, the firing mechanism must be considered armed.

a. Ensure arming wire installed through hole in top of fin, through pop-out pin and extends below bottom of fin.

b. Safety pin removed.





**NOTE**

THE FUZE ARMING ASSEMBLY CONSISTS OF A DRIVE SHAFT, FUZE DRIVE ADAPTER AND FUZE DRIVE.

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Figure 5-12. MK 346 Fuze Arming Assemblies MK 3, 4, and 5 and MODS

5-21. MK 346 FUZE ARMING ASSEMBLIES MK 3, 4, 5 AND MODS (figure 5-12).

5-22. The MK 346 long-delay tail fuze and the associated arming assembly (less arming vane) are installed during bomb assembly. Only the procedures for inspection of the arming assembly and installation of the arming vane are included here.

1. Arming Assembly Fuze Drive Inspection. Inspect as follows:

**NOTE**

Arming assemblies with the MK 5 MOD 0 fuze drive will have the arming vanes permanently attached. The arming vanes on MK 5 MOD 1 and subsequent fuze drive are detachable and will be installed on the drive after the weapon is loaded on the aircraft.

a. Fuze drive securely installed in the tail of weapon and external surfaces not damaged. Ensure that adapter collar cannot be twisted by hand. Check that both latches are fully engaged over edge of locking nut.

**NOTE**

The safety cotter pin should be installed so that the split end will point at the vane when the vane is installed. One leg of the pin may be straightened to facilitate removal.

b. Safety cotter pin installed through vane strap and vane plate and secure.

c. Arming vane available for MK 5 MOD 1 and subsequent Mods fuze drives. Ensure arming vane not damaged.

**NOTE**

Do not install arming vane until after bomb is loaded on the aircraft.

2. Arming Vane Installation. Install as follows:

a. (MK 5 MOD 1 and subsequent fuze drives). Position arming vane over the hub and the two locking studs with the cone-shaped projections at the end of each slot facing away from the fuze. Depress arming vane firmly against hub and rotate clockwise until slots are fully seated against the locking studs.

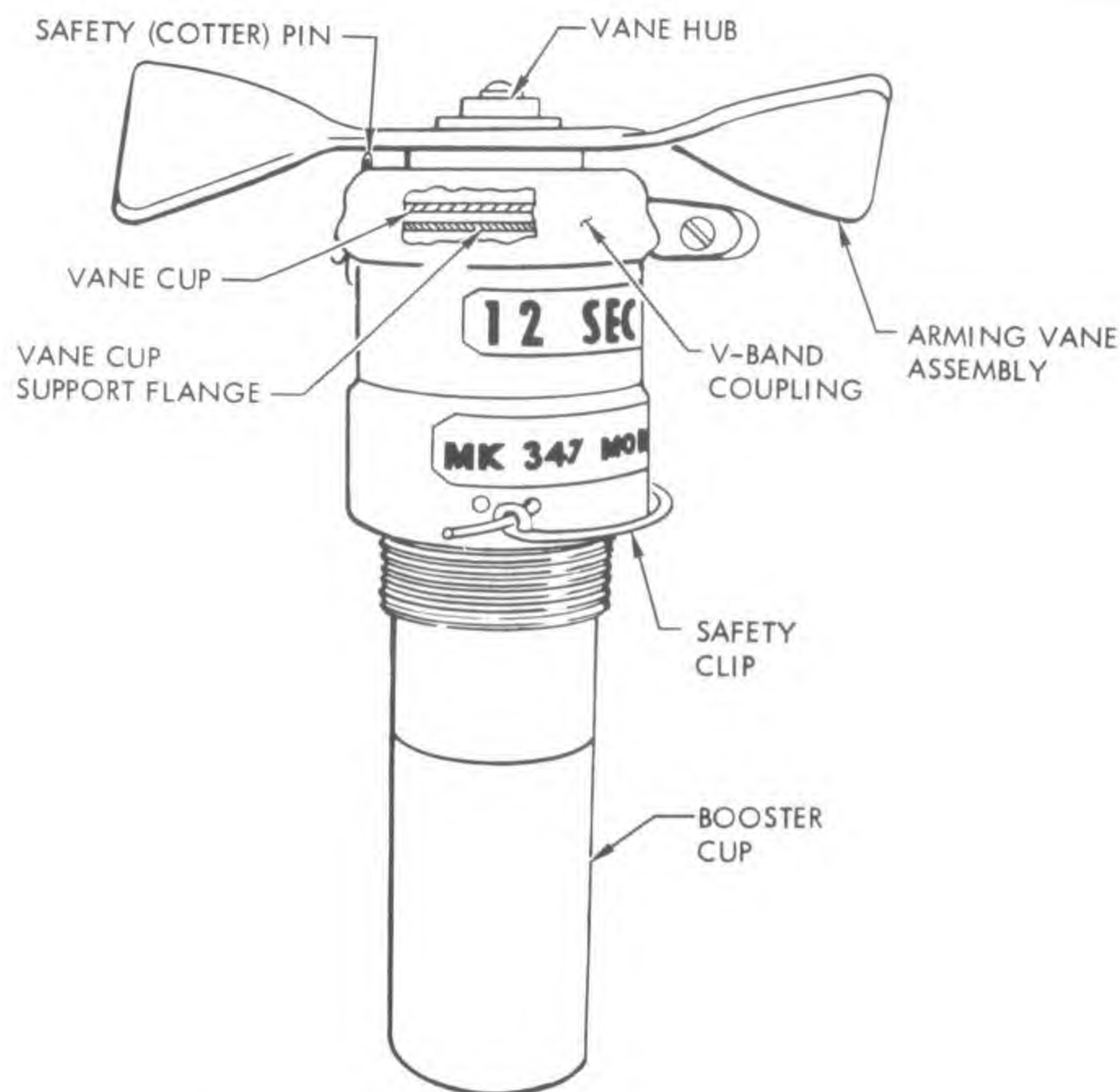
b. Refer to table 5-4 for arming wire requirements.

c. Insert arming wire through holes in upper vane strap, vane plate, and arming vane. Install two Fahnestock clips snugly against arming vane.

d. Cut excess arming wire 3 to 4 inches from arming vane.

e. Remove safety cotter pin.





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Figure 5-13. MK 347 MOD 0 Mechanical Nose Fuze

3. Postloading, Quality Assurance. Inspect for the following:

- a. Steel nose plug in bomb.
- b. Arming vane installed and secure.
- c. Arming wire installed with two Fahnestock clips snug against arming vane.
- d. Safety cotter pin removed.

4. Unloading. Perform as follows:

**WARNING**

If arming wire is not in place, consider the fuze to be armed. A fully armed fuze will detonate at the end of the set time delay. Do not attempt to disarm the fuze or remove the arming vane or fuze from the bomb. Clear the area and notify proper authority immediately.

- a. Ensure arming wire is installed in arming vane plate.
- b. Install safety cotter pin with warning tag through vane strap and vane plate and secure with at least one leg of cotter pin.

c. Remove arming wire.

d. Remove arming vane from MK 5 MOD 1 and subsequent fuze drives by rotating counterclockwise.

e. Fully secure safety cotter pin by bending both legs a full 90 degrees.

f. Return arming vanes to suitable handling container.

5-23. MK 347 MOD 0 MECHANICAL NOSE FUZE (figure 5-13).

1. Inspect for safe condition as follows:

- a. V-band coupling secured around flanges of vane cup and vane-cup support; cotter pin secured.
- b. Safety cotter pin through flanges of vane cup and vane-cup support.
- c. Safety clip through fuze body.

**CAUTION**

The screw in top of fuze hub must be tight. Do not remove screw.

- d. Small screw in fuze hub tight.



- e. Set screw in side of fuze body tight.
- f. Remove V-band coupling. Retain for possible future use.

WARNING

If vane cup is missing, fuze is fully armed. If clearance between flanges of vane cup and vane-cup support exceeds 1/8 inch, fuze is partially armed. Notify proper authority immediately if an armed or partially armed condition is indicated.

- g. Clearance between flanges of vane cup and vane-cup support 1/8 inch or less.
- h. External surfaces and threads clean and not damaged; booster cup secure on fuze body.

2. Inspect for serviceable condition as follows:

- a. External surfaces and threads clean and undamaged; booster cup secure on fuze body.

CAUTION

Arming vanes should be attached to the fuze after the fuze has been installed in the bomb.

- b. Arming vane available; ensure vane not damaged or deformed.

3. Fuze Installation. Install as follows:

- a. Ensure that nose adapter booster is installed in bomb and adapter booster threads are clean and not damaged.

- b. Screw fuze into adapter booster handtight.

CAUTION

Use care to prevent bending or deforming arming vane. Do not remove screw in top of fuze hub for installation or removal of arming vane.

- c. Screw arming vane on fuze hub handtight.
- d. Refer to arming wire routing figures for arming wire installation.
- e. Insert arming wire through hole in flange of vane-cup support and vane cup. Install two Fahnestock clips snug against vane-cup flange.
- f. Cut excess arming wire 3 to 4 inches forward of flange.
- g. Remove safety cotter pin and safety clip.

4. Postloading, Quality Assurance. Inspect for the following:

- a. Ensure fuze is installed in bomb hand tight.

- b. Ensure arming wire is properly installed and secure.

- c. Ensure arming wire is properly routed with two Fahnestock clips installed.

- d. V-band coupling removed.

- e. Safety cotter pin and safety clip removed.

5. Fuze Removal. Remove fuze as follows:

WARNING

If arming wire is not in place or vane cup is missing, consider fuze to be armed. If clearance between flanges of vane cup and vane-cup support exceeds 1/8-inch, consider fuze to be partially armed. Do not attempt to disarm fuze or remove fuze from bomb. Notify proper authority immediately if an armed or partially armed condition is indicated.

- a. Check that arming wire is installed in the vane-cup support and vane cup, and clearance between flanges of vane cup and vane-cup support is 1/8 inch or less.

- b. Install safety clip through fuze body.

- c. Install safety cotter pin through flanges of vane cup and vane-cup support.

- d. Remove arming wire.

- e. Unscrew arming vane from fuze.

- f. Remove fuze from bomb. Install V-band coupling and secure with cotter pin.

- g. Place fuze and arming vane in suitable handling container.

5-24. M904E2/E3 MECHANICAL NOSE FUZE (figure 5-14).

1. Inspect for safe condition as follows:

WARNING

If the arming delay setting cannot be changed, the fuze is to be considered armed. Discontinue inspection and notify proper authority.

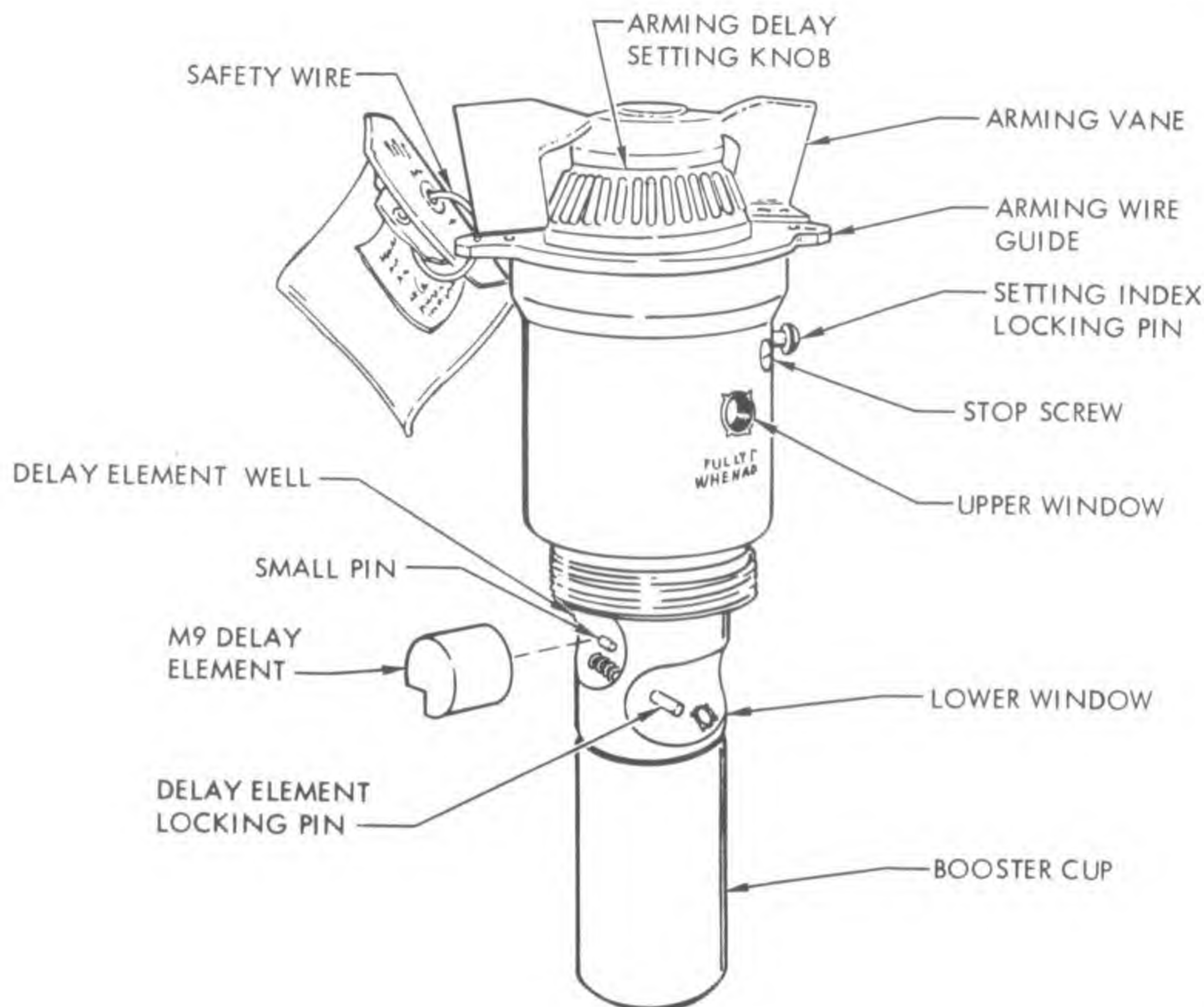
CAUTION

Under red-light condition, red appears light in color and green appears dark. Ensure proper color is observed.

- a. M904E2 Safety Inspection.

- (1) Safety wire installed through the arming vane and arming wire guide.





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Figure 5-14. M904E2/E3 Mechanical Nose Fuze

**WARNING**

Full red in upper or lower window (with black letter "A" on red in the lower window of some fuzes) indicates a fully armed fuze. Notify proper authority immediately when an armed or partially armed condition is noted.

**NOTE**

In some fuzes a thin red band may be visible at the bottom of the upper window in the safe condition.

- (2) Ensure that upper window does not show red or red with black letter "A".

**WARNING**

If a white stripe is not visible in upper window when the arming delay is set on 6 or 18, or if a white stripe appears in the upper window when the arming delay is not set on 6 or 18, the fuze is partially armed.

**NOTE**

Each fuze must be inspected at the 6 and 18 second setting when removed from its individual container. Subsequent inspections will be made at either the 6 or 18 second setting.

- (3) Set arming delay to 6 and/or 18 seconds. Ensure white stripe appears in upper window. Lower window must remain vacant or dark in color.

b. M904E3 Safety Inspection.

**WARNING**

Black letter "A" against red background in upper or lower window indicates a fully armed fuze. Notify proper authority immediately when an armed or partially armed condition is indicated.

- (1) Ensure that upper and lower windows do not show red with black letter "A".



WARNING

If green background without 6 or 18 appears in upper window when the arming delay is set on 6 or 18, or if the number in the upper window does not match the arming delay setting number, the fuze is partially armed.

NOTE

Each fuze must be inspected at the 6 and 18 second setting when removed from its individual container. Subsequent inspections will be made at either the 6 or 18 second setting.

- (2) Set arming delay to 6 and/or 18 seconds. Ensure green background with white number 6 or 18, depending on arming delay setting, appears in upper window. Lower window must remain vacant or dark.

c. External surfaces and threads clean and not damaged.

CAUTION

Do not reinstall the stop screw if the delay is set at the 2 or 4 second setting or a dud may result.

NOTE

Arming delay may be set before or after fuze is installed in the bomb. The stop screw must be removed to obtain the 2 or 4 second delay setting.

d. Set arming delay. Ensure arming delay setting knob is locked at desired setting when setting index locking pin is released.

e. M9 delay element installed. If no delay element is installed, proceed as follows:

WARNING

The delay element is a percussion device. Do not drop. Handle with extreme care.

- (1) Check that delay element well is clean and not damaged.
- (2) Check that desired delay element is being used (delay time is printed on outer end of element). Ensure element is clean and not damaged.
- (3) Depress delay element locking pin.
- (4) Align keyway in delay element with small pin in delay element well.
- (5) Insert delay element into delay element well.
- (6) Release delay element locking pin and ensure that element is fully seated and locked.

2. Fuze Installation. Install as follows:

a. Ensure that nose adapter booster is installed in bomb and adapter booster threads are clean and undamaged.

b. Screw fuze into adapter booster hand tight. Alignment of arming wire guide with bomb lug centerline is not necessary.

3. Arming Wire Installation. Install as follows:

a. Refer to table 5-4 for arming wire requirements.

b. Insert arming wire through arming wire guide and arming vane. Install three Fahnestock clips.

c. Cut excess arming wire 3 to 4 inches forward of arming vane.

d. Remove safety wire from nose retaining ring and arming vane.

4. Postloading, Quality Assurance. Inspect for the following:

- a. Fuze installed hand tight.
- b. Desired arming delay set (stop screw must not be installed if using 2 or 4 second setting).
- c. Arming wire properly routed and three Fahnestock clips installed.
- d. Safety wire removed.

5. Fuze Removal. Remove fuze as follows:

- a. M904E2 Safety Inspection.

WARNING

If arming wire is not in place or if upper window is red, consider the fuze to be armed. Do not attempt to change arming delay setting, disarm the fuze, or remove the fuze from the bomb. Notify proper authority immediately when an armed or partially armed condition is indicated.

- (1) Ensure arming wire is installed in the nose retaining ring and arming vane.
- (2) Ensure that upper (external) window does not show full red.

WARNING

If a white stripe is not visible in upper (external) window when the arming delay is set on 6 or 18, or if a white stripe appears in the upper window when the arming delay is not set on 6 or 18, the fuze is partially armed.

- (3) Ensure that upper (external) window is vacant if arming delay is not set on 6 or 18 seconds. If set on 6 or 18, ensure that a white stripe appears in upper window.



- (4) Install safety wire in arming vane and nose retaining ring.
- (5) Remove arming wire.
- (6) Remove fuze from bomb.

WARNING

If lower window shows red with black letter "A" on red background fuze is armed. Notify proper authority.

- (7) Check that lower window is vacant or dark in color.
- (8) Place fuze in suitable handling container.

b. M904E3 Safety Inspection.

WARNING

If arming wire is not in place or if upper (external) window is red with black letter "A", consider the fuze to be armed. Do not attempt to change arming delay settings, disarm the fuze or remove the fuze from the bomb. Notify proper authority immediately when an arming or partially armed condition is indicated.

- (1) Ensure arming wire is installed in the arming wire guide and arming vane.
- (2) Ensure that upper (external) window does not show red with black letter "A".

WARNING

If green background without 6 or 18 appears in upper (external) window when the arming delay is set on 6 or 18, or if the number in the upper (external) window does not match the arming delay setting number, the fuze is partially armed.

- (3) Ensure that upper (external) window is green if arming delay is not set on 6 or 18 seconds. If set on 6 or 18, ensure that green background with matching numbers appear in window.

- (4) Install safety wire in arming vane and nose retaining ring.
- (5) Remove arming wire.
- (6) Remove fuze from bomb.

5-25. ARMING WIRE INSTALLATION PROCEDURES.

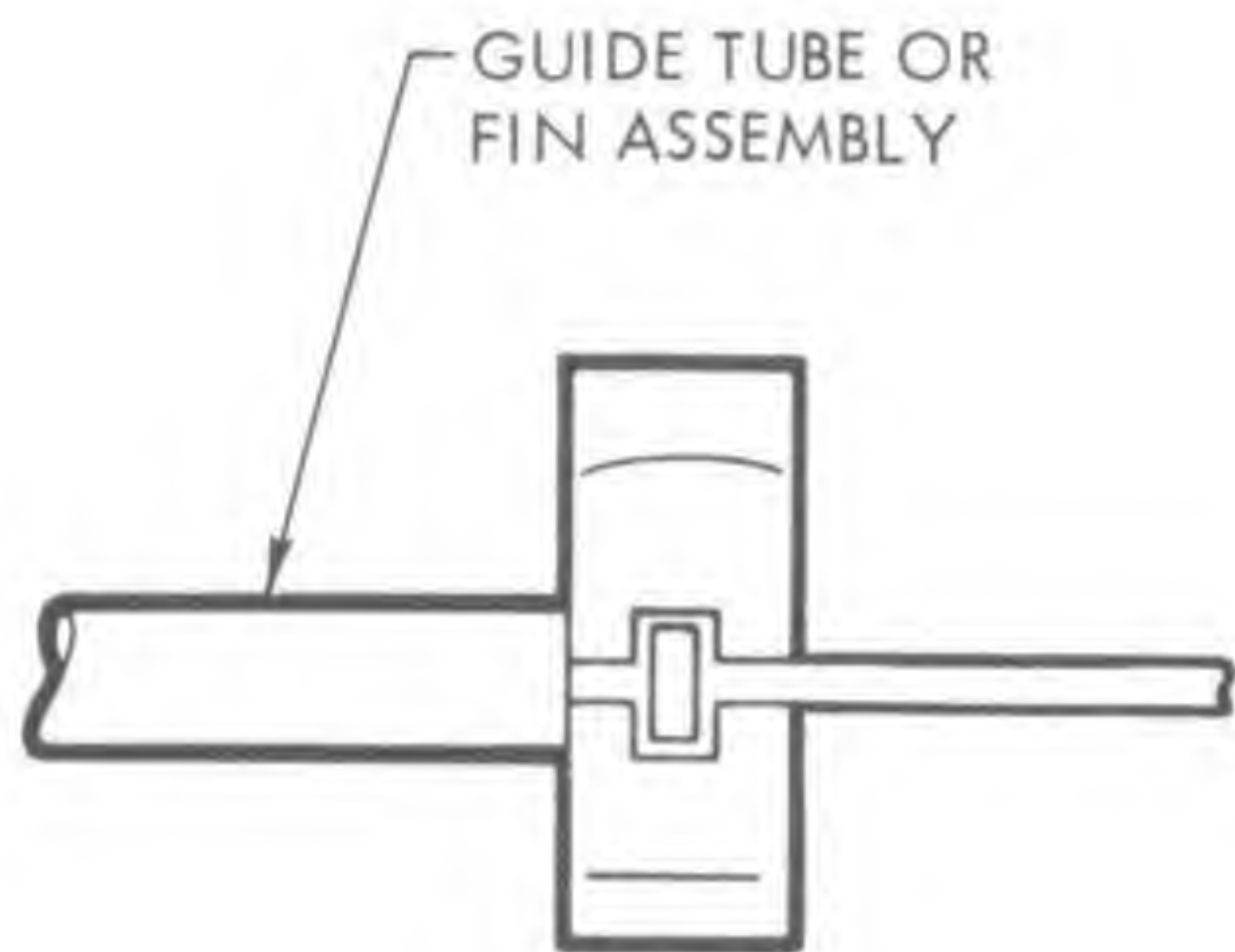
5-26. The following general procedures apply to the handling of all arming wires and must be observed to ensure safety as well as reliability. Refer to table 5-4 for arming wire size and length.

1. Arming wires, unless otherwise specified, shall not be installed in the fuze until after the bomb has been loaded on the aircraft and the bomb rack safety pin(s) installed.
2. Either a safety pin, a safety wire, or an arming wire must be installed in the fuze at all times.
3. New arming wires and Fahnestock clips shall be used for each installation. During aircraft turnaround, all arming wires that remain installed in ordnance on the aircraft must be carefully inspected for the following:
  - a. No kinks or bends in wire between Fahnestock clips and free end of wire.
  - b. Swivel loops properly attached to solenoids.
  - c. Arming wire not cut or nicked by vibration of arming vane during flight.
4. If arming wire replacement is necessary, safety pin/wire must be installed in fuze while arming wire is being replaced.
5. Do not make the final cut of the arming wire until the wire has been attached to the aircraft, installed through the fuze, and the slack adjusted.

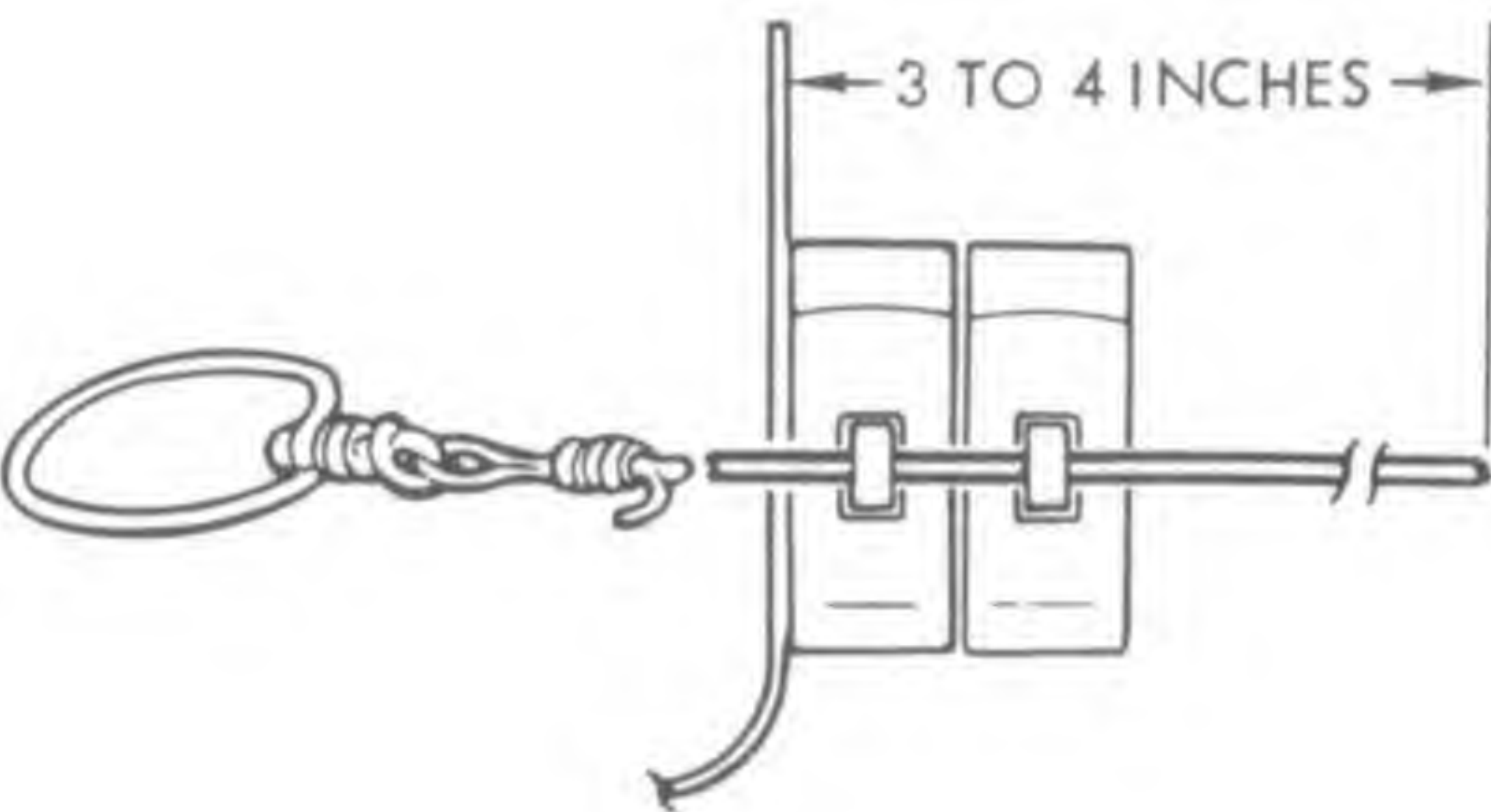
Table 5-4. Arming Wire Data

ARMING WIRES	TYPE	MATERIAL	DIAMETER (INCHES)	LEG LENGTHS (INCHES)
MK 1 MOD 0	Single	Brass	0.064	57.0
MK 2 MOD 0	Double	Brass	0.064	57.0
MK 3 MOD 0	Single	Steel	0.033	57.0
MK 4 MOD 1	Double	Brass	0.064	96.0
MK 9 MOD 0	Single	Brass	0.064	90.0





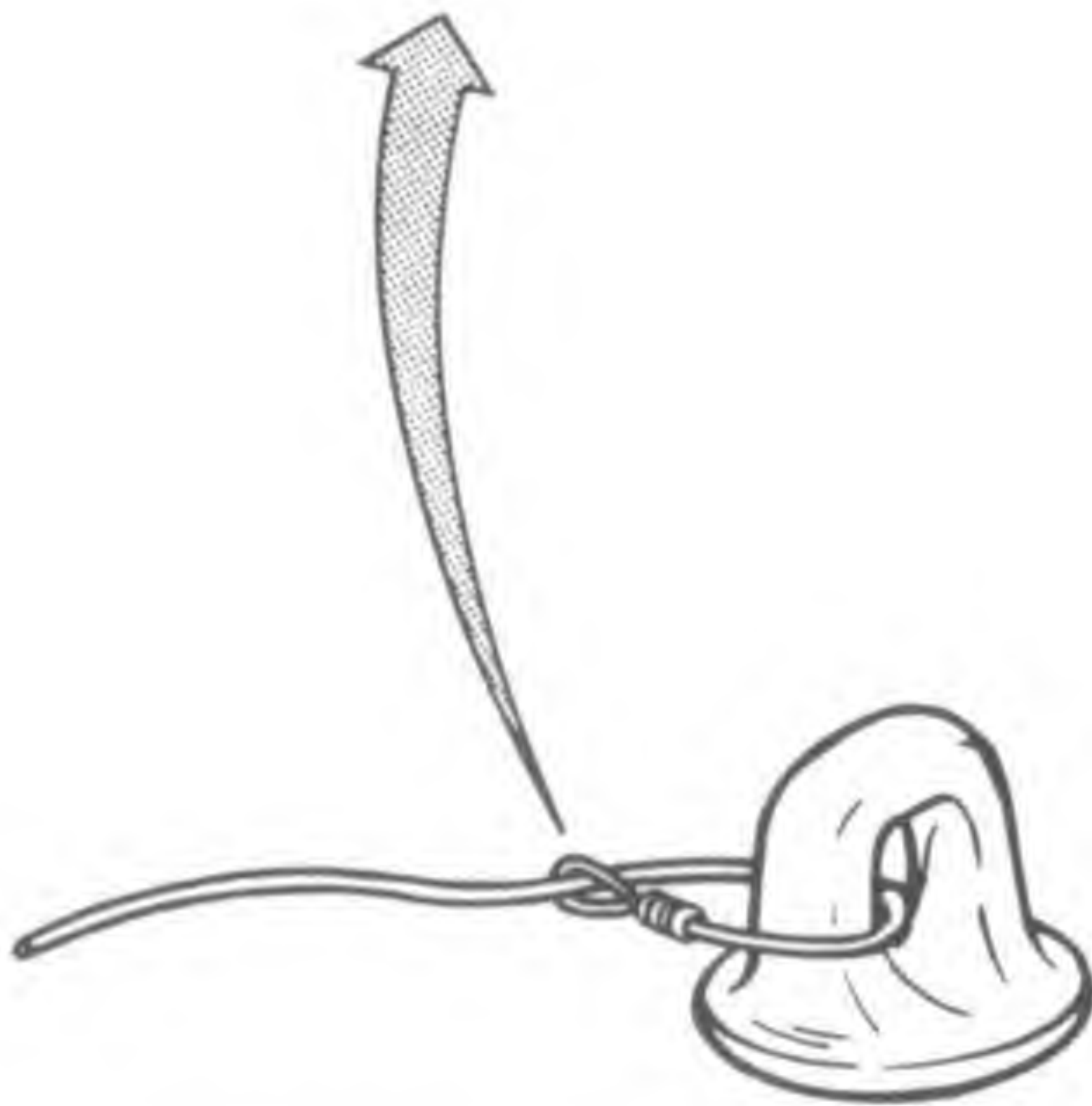
RETARDED FIN WIRE CONFIGURATION



TYPICAL FAHNESTOCK (SAFETY)  
CLIP INSTALLATION



REMOVE LEG WITH FERRULE RETAINING  
BEND WHEN SINGLE WIRE DESIRED



PREFERRED ATTACHMENT

PRIOR TO ATTACHING ARMING  
WIRE REMOVE SWIVEL LOOP  
AS SHOWN IN INSET.

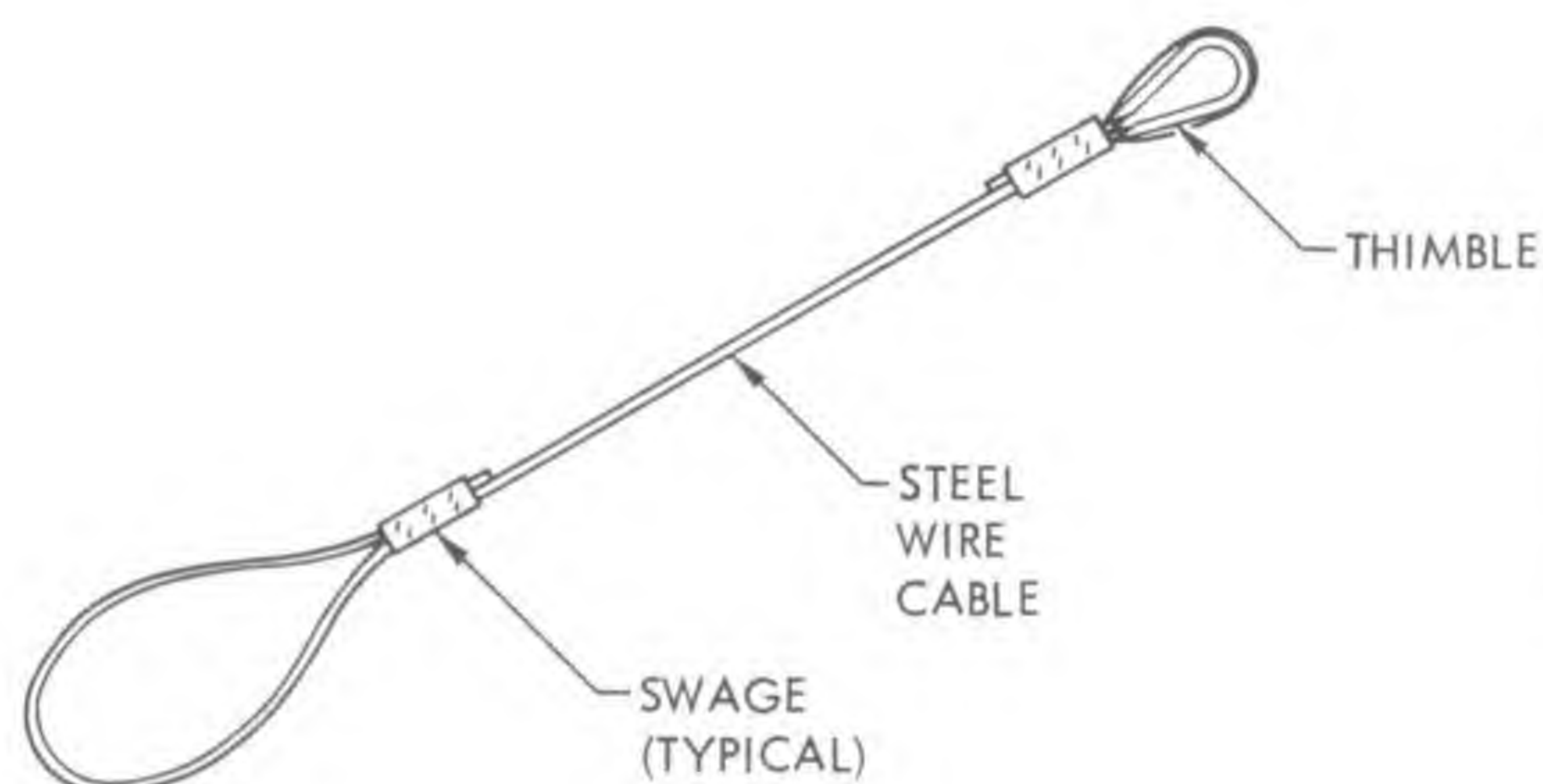


ALTERNATE ATTACHMENT

IF SWIVEL LOOP IS NOT REMOVED,  
ENSURE THAT ARMING WIRE IS IN-  
STALLED SO THAT SWIVEL LOOP IS  
POSITIONED OUTSIDE OF BOMB LUG.

Figure 5-15. Installation of Arming Wires

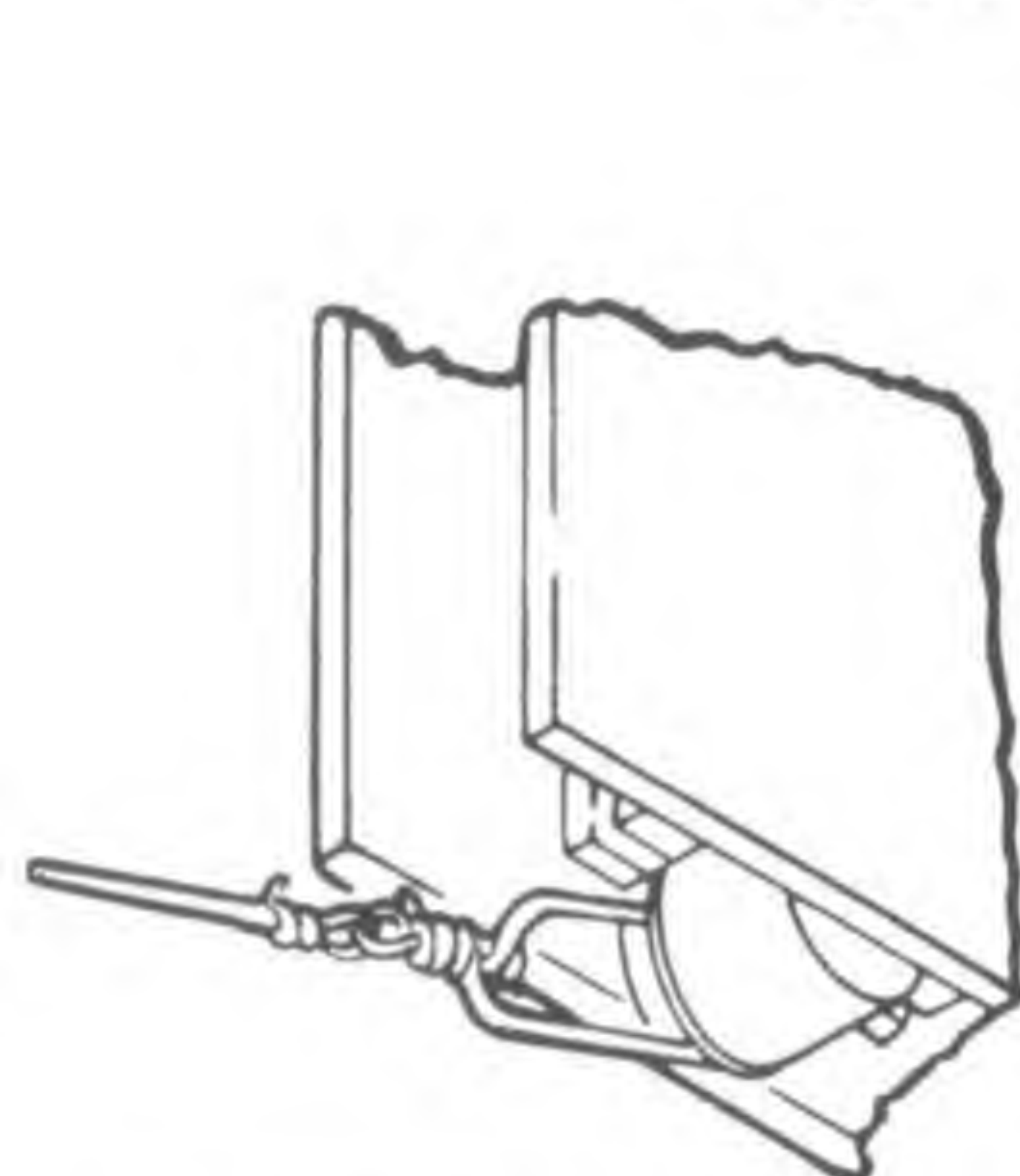




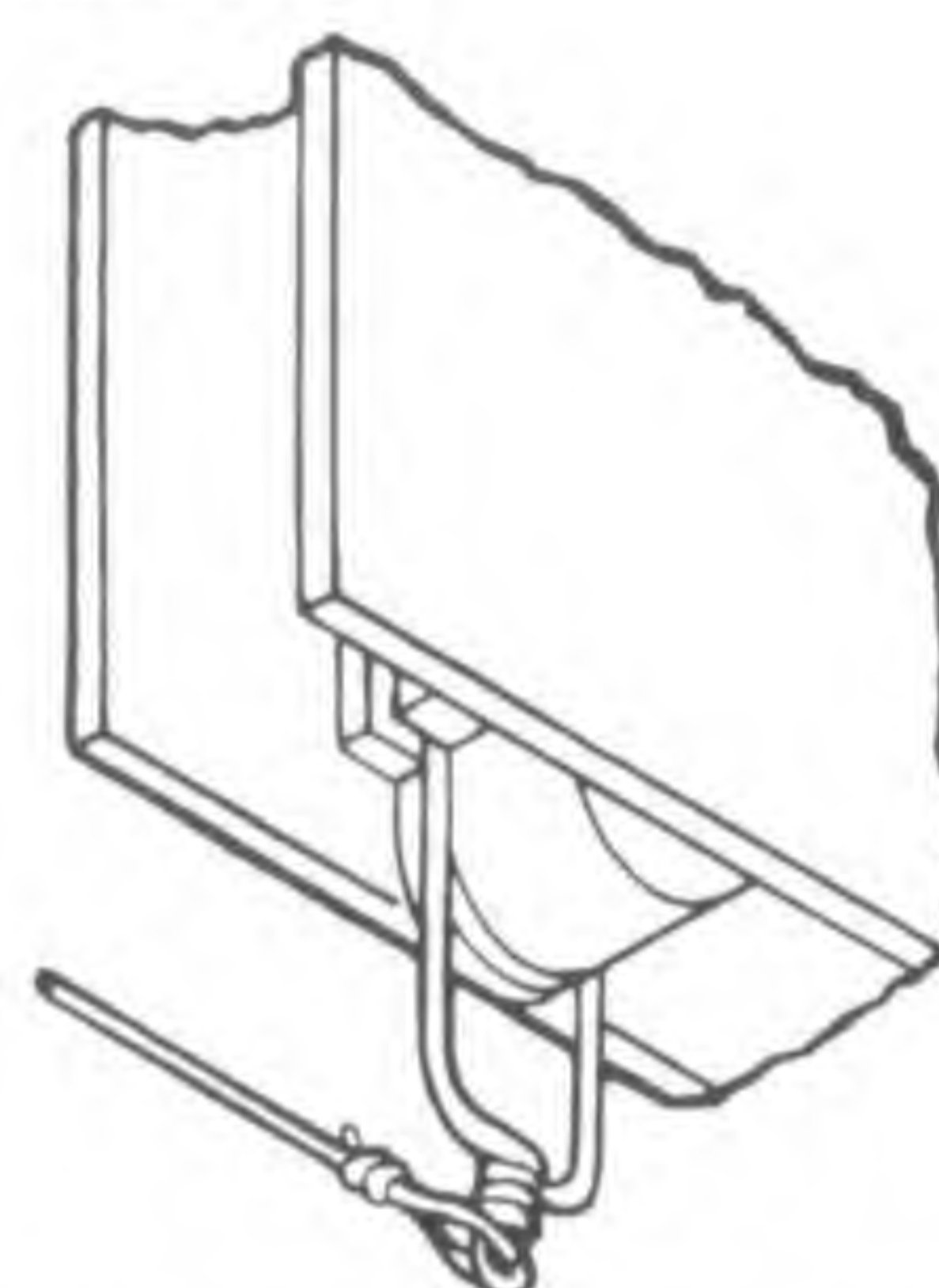
LOCAL MANUFACTURE	
STEEL WIRE CABLE . . . . .	1/8"
SWAGES . . . . .	1/8"
THIMBLE . . . . .	1/8"
LENGTH - APPROXIMATELY 7.5 INCHES	

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Figure 5-16. Arming Lanyard Assembly



ARMING WIRE PRELOADED



ARMING WIRE NOT PRELOADED

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Figure 5-17. Arming Wire to Arming Solenoid Installation

6. Use only the number of Fahnestock clips prescribed in the arming wire routing figures. An improper number of clips can cause unreliable or unsafe operation of the fuze.

7. When procedures require that arming wires be attached to the bomb suspension lugs (figure 5-15), either of the installations shown in figure 5-15 may be used. The preferred method requires that the swivel loop be removed from the arming wire. If the swivel loop is not removed, the arming wire must be attached to the bomb lug with the swivel loop positioned outside of the lug. This is necessary to prevent interference with movement of the ejector rack hooks or damage to the swivel loop during loading.

8. The routing of arming wires with respect to the sway braces and bomb lugs is important to proper fuze operation. Note carefully whether Arming Wire Routing figures specifies that the arming wire pass under or over the sway braces and also if wire is threaded through or around the bomb suspension lug.

9. Each arming wire shall be routed so that it is not interlaced with other arming wires, arming cables, electrical cables, lanyards, etc., or other components in the rack/pylon area. Ensure that the wire, cable, etc., will not interfere with the operation of other arming devices or components in the rack/pylon area when the weapon is released.

10. When downloading weapons, do not remove the arming wire from the fuze until the safety pin/wire has been properly installed in the fuze. If a safety pin/wire is not available, cut the arming wire about 6 inches short of the arming vane and securely twist the ends of the wire together, thus keeping the arming vane from rotating.

11. The routing of arming wires through the arming lanyard (figure 5-16) for positive arming is important to proper fuze operation. Note carefully the figure which call for the arming lanyard to be installed on the sway brace arm. To install the arming lanyard, remove the sway brace bolt, slide the lanyard loop over the arm and then reinstall the sway brace bolt.

5-27. INSTALLATION AND ROUTING. Install and route as follows (figure 5-17):

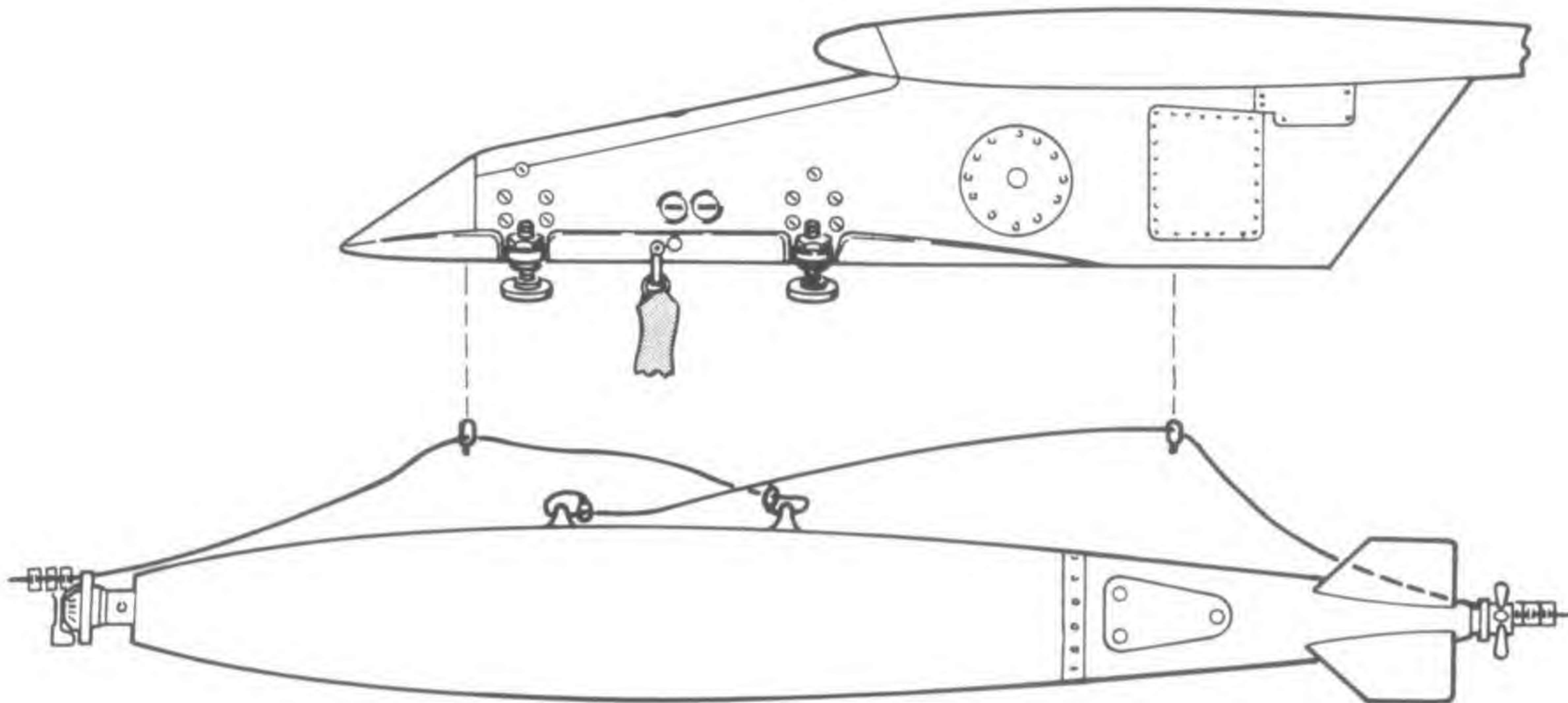
#### CAUTION

Arming wires must be installed so that the swivel loops exert no tension on the arming solenoids (wires not preloaded).

1. Connect arming wire swivel loop to the arming solenoid.

2. Pull wire through the fuze until all slack is removed from the wire and swivel loop is snug against the arming solenoid.





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Figure 5-18. MK 81, MK 82, and MK 83 Non-Retard Mechanical Nose and Tail Fuze

3. Install Fahnestock clips so that the clip closest to the fuze arming vane is 1/2 inch from the vane.

4. Move the arming wire until the Fahnestock clip is snug against the fuze arming vane and the swivel loop hangs loosely in the arming solenoid.

5. MK 81, MK 82 and MK 83 (figure 5-18).

a. Bomb configuration.

(1) MK 81 and MK 82, all stations.

(2) MK 83, inboard stations 2 and 4.

b. Non-retard mode.

c. Uses mechanical nose and tail fuze.

d. Arming wire requirements.

1. MK 81 and MK 82, MK 1 for nose and tail.

2. MK 83, MK 9 for nose and tail.

e. Arming wire routing.

(1) (Nose). Loop arming wire around aft suspension lug.

(2) (Tail). Loop arming wire around forward suspension lug.

(3) Pass wire through swivel loop in arming solenoid and arming vane.

(4) Install three Fahnestock clips.

(5) Cut arming wire 3 to 4 inches forward of arming vane.

6. MK 81 and MK 82 with retard fin (figure 5-19).

a. Bomb configuration.

(1) All stations.

b. Non-Retard mode.

c. Uses mechanical nose fuze.

d. Arming wire requirements.

(1) MK 1.

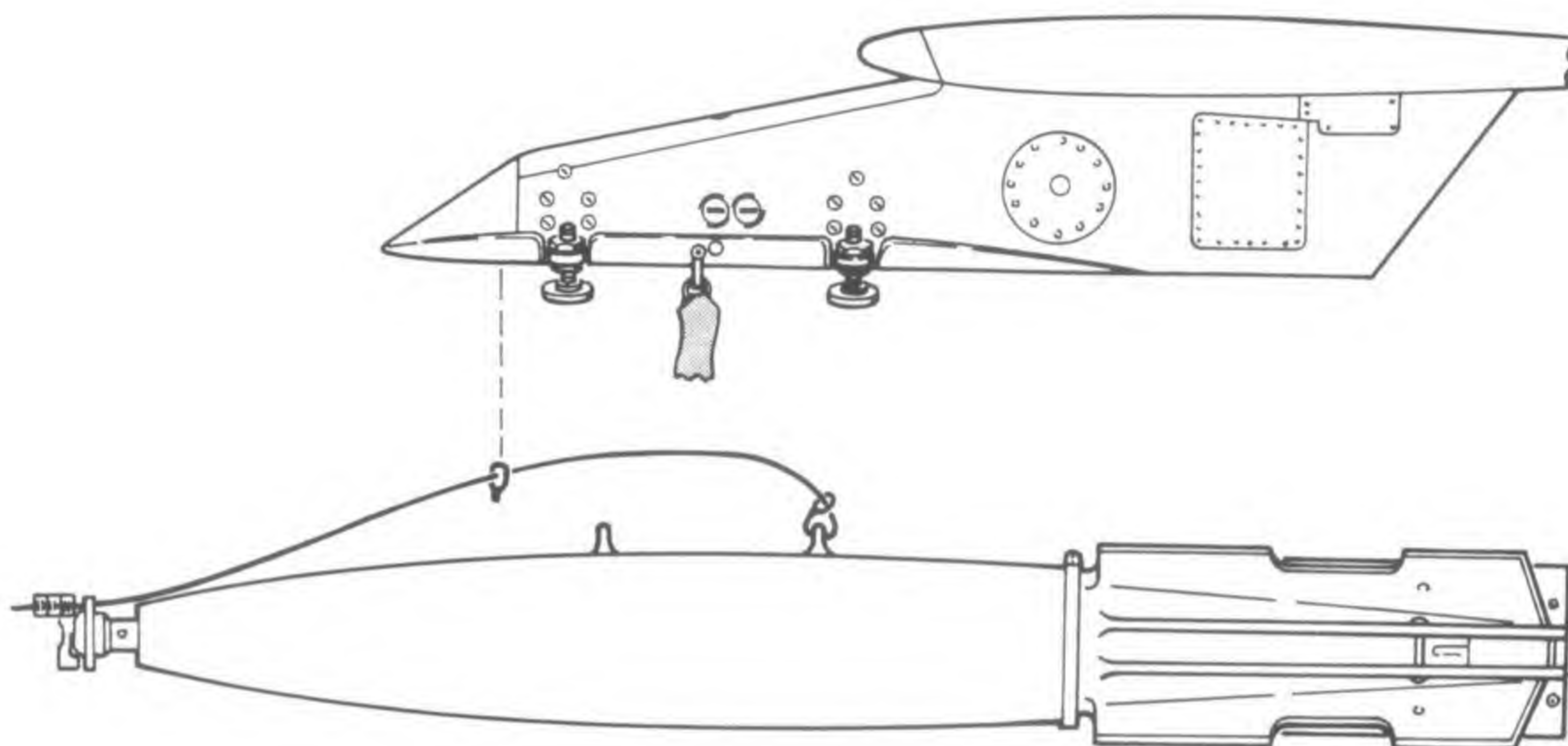
e. Arming wire routing.

(1) Loop arming wire around aft suspension lug.

(2) Pass wire through swivel loop in arming solenoid and arming vane.

(3) Install three Fahnestock clips.



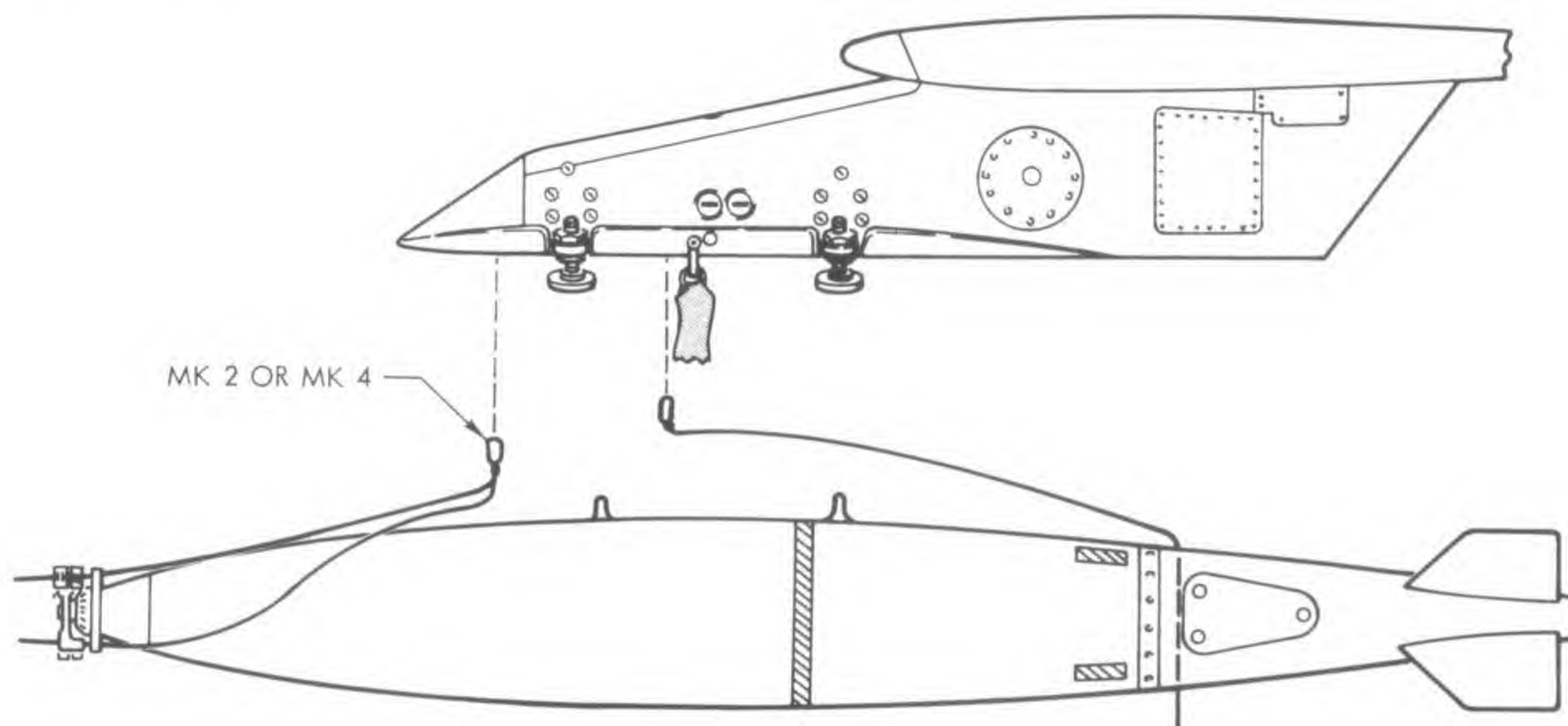


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Figure 5-19. MK 81 and MK 82 Non-Retard Mechanical Nose Fuze

7. MK 36/40 (Conical fin) (figure 5-20)
  - a. Bomb configuration.
    - (1) All stations.
  - b. Non-retard mode.
  - c. Uses MK 32 nose arming device and MK 42 firing device.
  - d. Arming wire requirements.
    - (1) MK 2 or MK 4 for nose.
    - (2) MK 3, or Air Force (1325-907-6734) only for tail.
  - e. Arming wire routing.
    - (1) (Nose). Connect swivel loop to nose arming solenoid.
    - (2) (Nose). Route both branches of arming wire through arming device vane.
    - (3) (Nose). Install two Fahnestock clips.
    - (4) (Nose). Cut arming wires 3 to 4 inches forward of arming vane.
    - (5) (Tail). Connect swivel loop to side arming solenoid.
    - (6) (Tail). Cut arming wire 6 to 7 inches from bottom of fin.
8. MK 124 (figure 5-21).
  - a. Bomb configuration.
    - (1) All stations.
  - b. Retard mode.
  - c. Uses MK 89 adapter/MK 4 signal.
  - d. Arming wire requirements.
    - (1) MK 1 for fin release.
    - (2) MK 3 for MK 89 adapter/MK 4 signal.
  - e. Arming wire routing.
    - (1) (Fin). Loop fin release wire around forward suspension lug.
    - (2) (Fin). Pass wire through swivel, in arming solenoid fin release band and guide tube.
    - (3) (Fin). Install three Fahnestock clips.
    - (4) (Retard). Cut fin release wire 10 inches beyond guide tube.



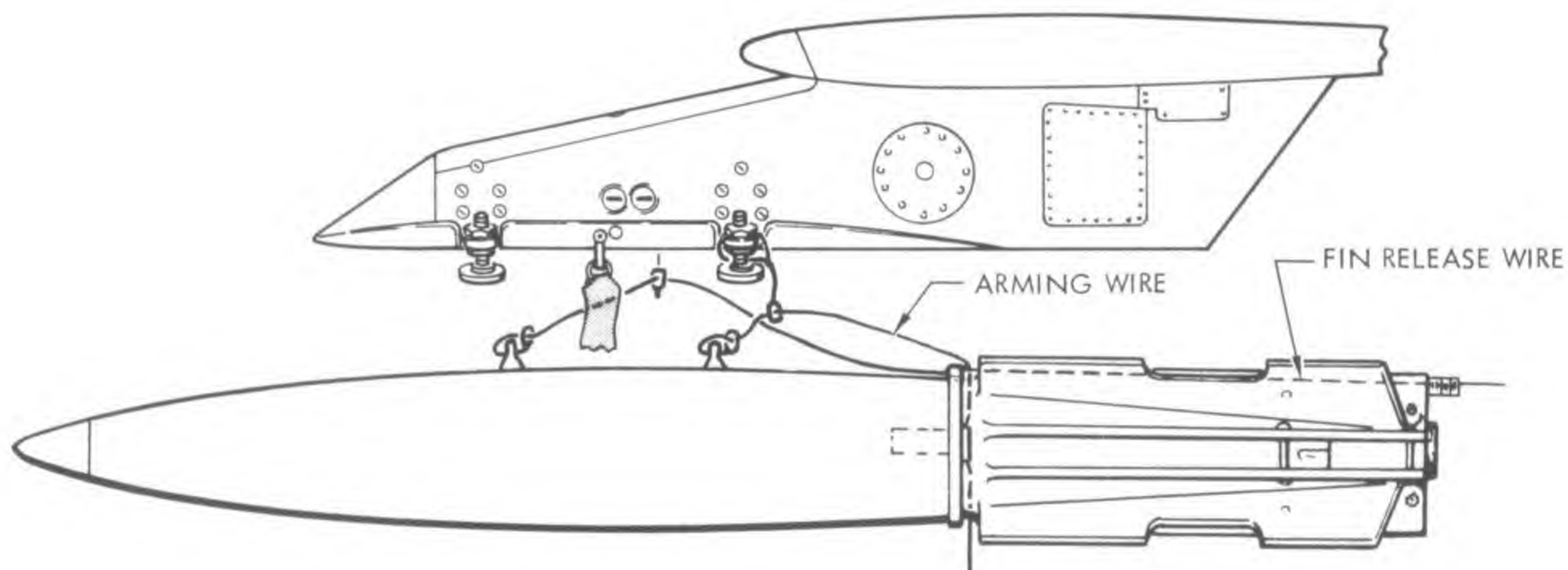


NOTE

THE MK 3 OR THE AIR FORCE STAINLESS STEEL (0.060 INCH DIAMETER) ARMING WIRE, SINGLE STRAND, FSN-1325-907-6734 ARE THE ONLY AUTHORIZED WIRES FOR THE FIRING DEVICE (TAIL) ARMING WIRE.

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Figure 5-20. MK 36/40 With Conical Fin



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Figure 5-21. MK 124 Retard



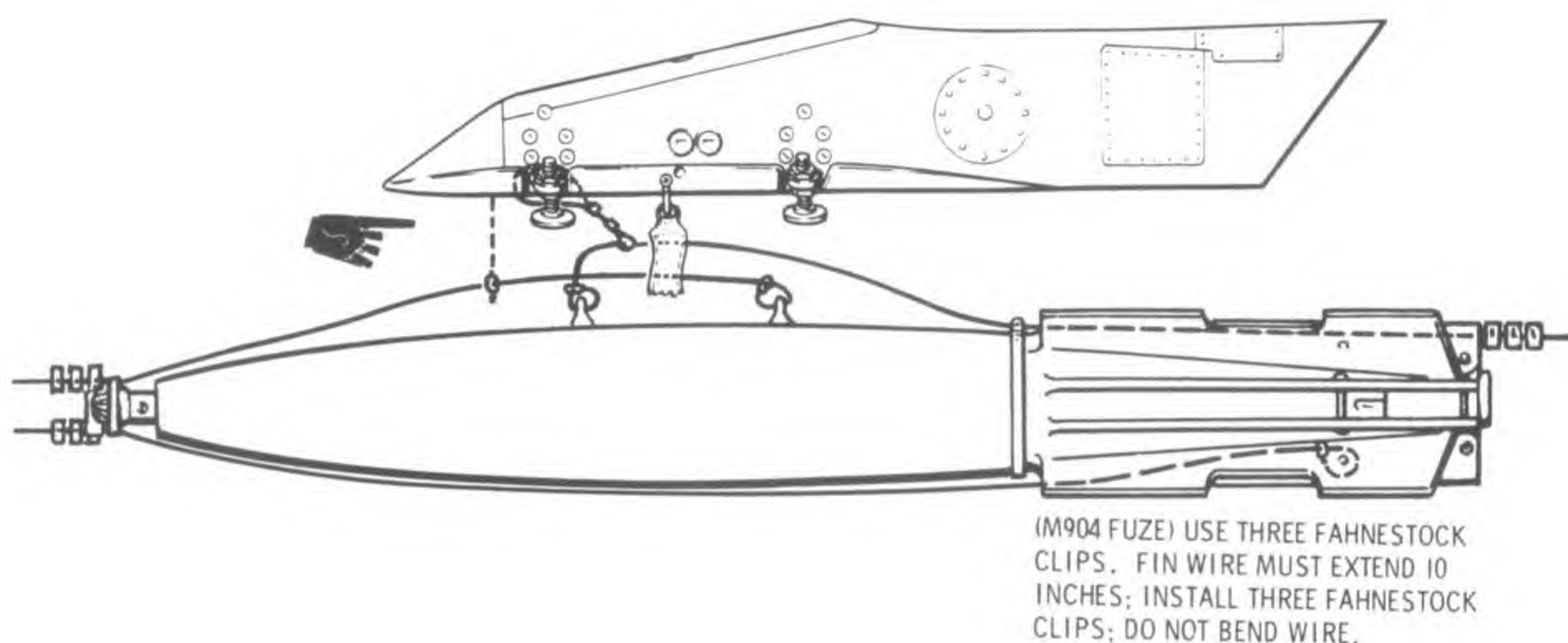


Figure 5-22. MK 81 and MK 82 Retard Mechanical Nose Fuze

- (5) (Signal). Loop arming wire around aft suspension lug.
  - (6) (Signal). Route arming wire through aft arming lanyard.
  - (7) (Signal). Route arming wire through hole in top of fin and through signal.
  - (8) Cut arming wire 6 to 7 inches from bottom of fin.
9. MK 81 and MK 82 (figure 5-22).
- a. Bomb configuration.
    - (1) All stations.
  - b. Retard mode.
  - c. Use mechanical nose fuze.
  - d. Arming wire requirements.
    - (1) MK 1 for nose and fin release.
    - (2) MK 9 for fin to nose.
  - e. Arming wire routing.
    - (1) (Nose). Loop arming wire around aft suspension lug.
    - (2) (Nose). Pass wire through swivel loop in arming solenoid and arming vane.
    - (3) (Nose). Install three Fahnestock clips.
    - (4) (Nose). Cut arming wire 3 to 4 inches forward of arming vane.
    - (5) (Fin to nose). Loop arming wire around bottom fin link pin and thread through nose fuze.
    - (6) (Fin to nose). Install two Fahnestock clips.
    - (7) (Nose/fin to nose). Cut arming wire 3 to 4 inches forward of arming vane.
    - (8) (Fin). Loop arming wire around forward suspension lug.
    - (9) (Fin). Pass wire through arming lanyard, release band and guide tube.
    - (10) (Fin). Install three Fahnestock clips.
    - (11) (Fin). Cut fin release wire 10 inches beyond guide tube.



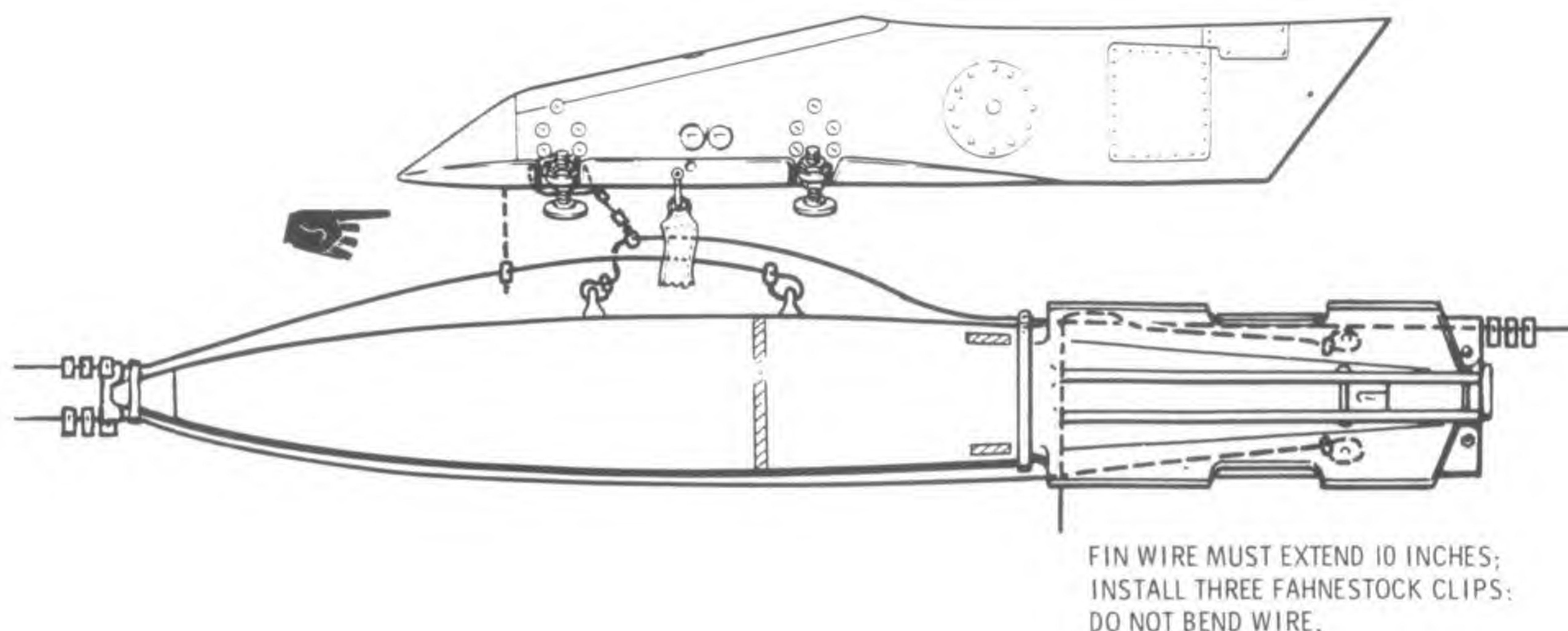


Figure 5-23. MK 36 Retard

10. MK 36 (figure 5-23).

a. Bomb configuration.

(1) All stations.

b. Retard mode.

c. Uses MK 30 or MK 32 arming device and MK 42 firing device.

d. Arming wire requirements.

(1) MK 1 for nose arming and fin release.

(2) MK 3 for tail firing mechanism.

(3) MK 9 for fin to nose.

e. Arming wire routing.

(1) (Nose). Loop arming wire around aft suspension lug.

(2) (Nose). Pass wire through swivel loop in arming solenoid and arming vane.

(3) (Nose). Install two Fahnestock clips.

(4) (Nose). Cut arming wire 3 to 4 inches forward of arming vane.

(5) (Fin to nose). Loop arming wire around bottom link pin and thread through nose arming device.

(6) (Nose/fin to nose). Install two Fahnestock clips.

(7) (Nose/fin to nose). Cut arming wire 3 to 4 inches forward of arming vane.

(8) (Fin). Loop arming wire around forward suspension lug.

(9) (Fin). Pass wire through arming lanyard, release band and guide tube.

(10) (Fin). Install three Fahnestock clips.

(11) (Fin). Cut fin release wire 10 inches beyond guide tube.

(12) (Tail fin). Cut arming wire 6 to 7 inches from bottom of fin.



5-28. AIRCRAFT ARMING AND SAFING SIGNALS.

5-29. The standardized aircraft arming and safing signals presented in table 5-5 shall be used, as ap-

plicable, during arming and safing operations and during stray voltage checks.

Table 5-5. Aircraft Arming and Safing Signals

SIGNAL		MEANING	RESPONSE
DAY	NIGHT		
ARMING SIGNALS			
1. <u>Arming supervisor:</u> Hands over the head with fingers touching.	Red wands over the head with tips touching.	<u>Aircraft crew member:</u> Check all armament switches OFF or SAFE.	<u>Aircraft crew member:</u> Raise both hands into view of arming supervisor after checking switch positions. (Hands remain in view during check and hookup.)
2. <u>Arming supervisor:</u> Points at crew member (used if applicable).	Same as day only with red wand.	<u>Crew:</u> Perform stray voltage checks.	<u>Arming crew:</u> Execute. Give arming supervisor thumbs up if no stray voltage exists. Thumbs down if exist. Night: Vertical sweep with flashlight indicates no stray voltage. Horizontal sweep indicates stray voltage.
3. <u>Arming supervisor:</u> Raise fist, thumb extended upward to meet horizontal palm of other hand.	Form a Tee with red wands.	<u>Arming Crew:</u> Arm weapons (as applicable).	<u>Arming crew:</u> Execute. Give arming supervisor thumbs up when arming completed and clear immediate area. Thumbs down if a malfunction exists. Night: same as step 2.
4. <u>Arming Supervisor</u> Gives pilot: a. Thumbs up.	a. Vertical sweep with red wand.	a. Aircraft is armed and all personnel and equipment clear of area.	<u>Pilot:</u> a. Acknowledge with similar signal.
b. Thumbs down.	b. Horizontal sweep with red wand.	b. Aircraft is down for weapons.	b. Acknowledge with similar signal.
SAFING SIGNALS			
1. <u>Safing supervisor:</u> Hands over the head with fingers touching.	Red wands over the head with tips touching.	<u>Aircraft crew member:</u> Check all armament switches OFF or SAFE.	<u>Aircraft crew member:</u> Execute. Raise both hands into view of safing supervisor after checking switch positions. (Hands remain in view during safing.)
2. <u>Safing supervisor:</u> Points at crew member	Same as day only with red wand.	<u>Crew:</u> Safe weapons (as applicable).	<u>Crew:</u> Execute.
3. <u>Safing supervisor:</u> Give pilot: Thumbs up.	Vertical sweep with red wand.	<u>Pilot:</u> Aircraft is safed and crew and equipment are clear.	<u>Pilot:</u> Acknowledge with similar signal.



### 5-30. POWER LIFT-TYPE BOMB TRUCK LOADING.

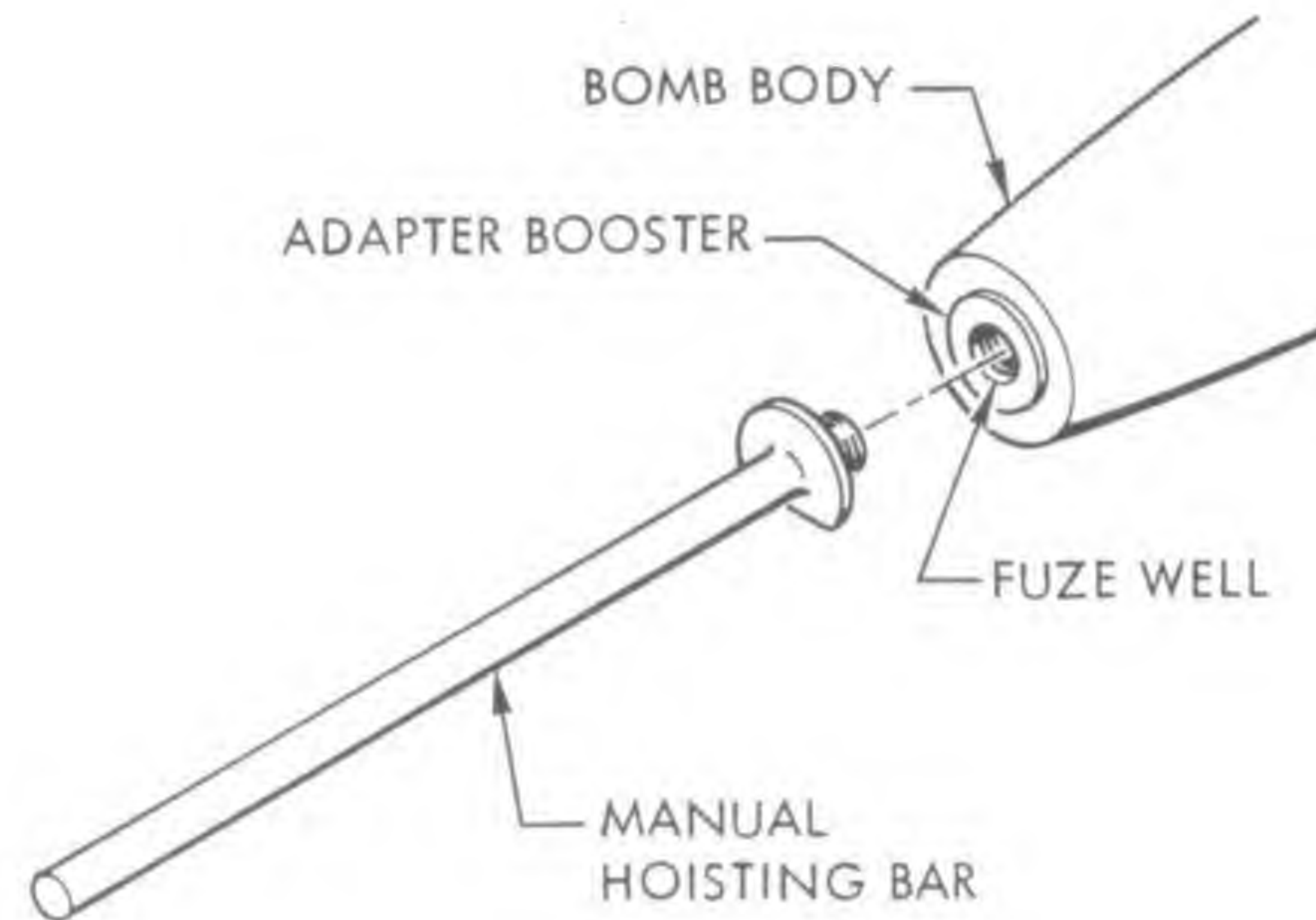
1. Pick up weapon/store with lift-type truck and, if not in vicinity of aircraft, secure with tiedown strap(s).
2. Maneuver bomb lift truck to position weapon/store under ejector rack unit hooks.
3. Raise bomb lift and align suspension lugs of weapon/store with ejector rack unit hooks.
4. Ensure ground safety pin/manual release tool is installed in cocking insert in ejector rack unit.
5. Sway braces adjusted and jam nut positioned below sway brace arm.
6. Loosen tie down straps and remove.
7. Continue raising weapon/store until both suspension lugs enter ejector rack unit hooks. Latch ejector rack unit hooks.
8. Visually inspect ejector rack unit indicates locked. (Operating arm not visible in ground safety pin hole.)
9. Lower bomb lift truck until weapon/store is supported by ejector rack unit hooks, and shake weapon/store gently to ensure that hooks are locked.
10. Install ejector rack unit safety pin.
11. Lower bomb lift truck sufficiently to clear weapon/store and remove.
12. Adjust sway braces so weapon/store is centered on ejector rack unit. Tighten sway braces to 84 inch-pounds. Tighten jam nuts.

### 5-31. MANUAL HOISTING BAR LOADING.

#### CAUTION

Extreme care must be exercised when installing manual hoisting bar to prevent cross threading of bar in bomb fuze well.

1. Install Aero 66A/69A manual hoisting bar in bomb fuze well (figure 5-24).
2. Remove tiedown straps.
3. Ensure ground safety pin/manual release tool is installed in cocking insert in ejector rack unit.



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Figure 5-24. Manual Hoisting Bar Installation

4. Sway braces adjusted and jam nut positioned below sway brace arm.
5. Lift weapon until both ejector rack unit hooks can be closed.
6. Visually inspect ejector rack unit indicates locked. (Operating arm not visible in ground safety pin hole.)
7. Gently shake weapon to ensure weapon is supported by ejector rack unit hooks.
8. Install ejector rack unit safety pin.
9. Remove manual hoisting bar.
10. Adjust sway braces so weapon is centered on ejector rack unit. Tighten sway braces to 84 inch-pounds. Tighten jam nuts.

### 5-32. EMERGENCY PROCEDURES.

- 5-33. **FIREFIGHTING.** Firefighting, time factor, evacuation distance, and withdrawal time criteria for conventional weapons are contained in NAVAIR 11-5A-17.
- 5-34. **MEDICAL.** Medical requirements for the given type weapon operations shall be as directed by fleet commander or higher authority.
- 5-35. **SECURITY.** Security requirements for the given type of weapon operations shall be as directed by fleet commander or higher authority.



## SECTION VI

### BOMBS NON-RETARD

#### 6-1. INTRODUCTION.

6-2. This section contains necessary AV-8A loading/unloading information for the weapons listed below. Procedures contain information necessary to assure safety and reliability, provided the assumptions in paragraph 1-22 have been complied with.

#### WARNING

This manual does not authorize station loading for flight. For specific authorization, refer to Tactical Manual.

MK 36 MOD 2/3 Destructor  
MK 40 MOD 2/3 Destructor  
MK 81 LDGP  
MK 82 LDGP  
MK 83 LDGP  
MK 86 MOD 0 Practice Sand Filled  
MK 87 MOD 0 Practice Sand Filled  
MK 88 MOD 0 Practice Sand Filled

#### 6-3. GROUND SUPPORT EQUIPMENT (GSE).

6-4. For ground support equipment refer to tables 2-4 and 2-5. Test equipment and special tools needed to perform loading operations are as follows:

##### 1. Test Equipment.

a. NONE

##### 2. Special Tools

a. Ground Safety Pin/Manual Release Tool.

#### 6-5. AIRCRAFT PREPARATION/INSPECTION.

6-6. The following procedures will ensure aircraft is in a safe condition prior to performing loading operations. Perform procedures in sequence indicated; certain steps will not apply depending upon aircraft configuration.

1. Check that aircraft is configured to receive weapons in accordance with section III.

2. Check that required release and control system checks have been completed in accordance with section IV.

3. Check that aircraft common procedures have been complied with in accordance with section V.

4. Ensure that ballistics plug is installed.

5. Check pylon for the following:

a. Breech caps and cartridges removed.

b. Ensure 0.037 inch throttles (orifice) are installed in stations to be loaded. Tighten to 84 inch-pounds.

c. Ensure breech housing is clean and very lightly oiled.

d. Ground safety pin/manual release tool installed in cocking insert.

e. Sway brace adjusted and jam nut positioned below sway brace arm.

f. Ejector rack unit hooks are open.

g. Repeat steps a through f for each station to be loaded.

#### 6-7. WEAPON INSPECTION.

6-8. If inspection of a weapon reveals that it is not acceptable for loading and cannot be made acceptable in a reasonable period of time, the weapon shall be returned to the assembly area. Notify proper authority.

#### WARNING

On MK 36/40 destructors, if arming wire is inadvertently withdrawn from the firing mechanism (tail component) or arming device, or if red indication is visible in arming device inspection window, clear area and notify proper authority immediately.

1. (MK 36/40). MK 32 arming device safe; safety wire installed.

2. (MK 36/40). Check that arming wire for firing mechanism is installed and extends 6 to 7 inches below fin; check tagged safety pin is removed.

3. (MK 36/40). Check that water tight plug is installed in electric cable well of bomb.

4. Inspect fuze in accordance with applicable paragraphs 5-17 through 5-24.

5. Nose and tail shipping plugs removed as required.

6. Fuze cavities not damaged and free of foreign material.

7. (Practice Bombs). Signal cartridge installed.

#### NOTE

Fins will be in the X configuration.

8. Check that bomb fins are aligned and positioned with respect to bomb lugs.

9. Inspect suspension lugs for proper alignment. Use MS3314/MAU-76 lugs. (Suspension lug shoulders are flush with lug wells, then back out 1 1/2 turns and align; reject bomb if this criteria cannot be made.)



10. Inspect retard fin for the following:

NOTE

When retard fin is installed, fin release band safety pin must be installed.

- a. Fin release band safety pin installed.
- b. Fin setscrews on MK 14/MK 15 MODS 3/4 secure and at least 1/16 inch below outside diameter of flange.
- c. MK 15 MODS 1/2 fin cinch ring secure.
- d. Ears on retaining ring on MK 15 MOD 1/2 fin at least 1 3/4 inches apart and pointed forward.
- e. Garter spring on MK 15 MODS 1/2 fin firmly seated in groove.

11. Repeat applicable steps 1 through 10 for each weapon.

6-9. WEAPON LOADING.

6-10. PREPARATION. Check for the following:

1. Aircraft preparation/inspection (paragraph 6-5) and weapon inspection (paragraph 6-7) is completed.

WARNING

Electrical power shall not be applied to the aircraft at any time during loading procedures.

2. Ensure battery switches are OFF.
3. External power removed from aircraft.
4. Aircraft grounded.
5. Check armament switches are in OFF or SAFE position (table 5-1).
6. Patching switches located on weapon control panel set as required (table 5-2).
7. Store type indicator located on weapon control panel set to B (ff) position.
8. Weapon/loading equipment positioned/rigged for loading.

6-11. LOADING. Load as follows:

WARNING

On MK 36/40 destructors, if arming wire is inadvertently withdrawn from the firing mechanism (tail component) or arming device, or red indication is visible in arming device inspection window, clear area and notify proper authority immediately.

1. Using available authorized loading equipment, raise weapon until bomb lugs are aligned with ejector rack unit hooks.

2. Latch ejector rack unit hooks.

3. Visually inspect ejector rack unit indicates locked. (Operating arm not visible in ground safety pin hole.)

4. Gently shake weapon to ensure weapon is supported by ejector rack unit hooks.

5. Install ejector rack unit safety pin.

6. Lower loading equipment sufficiently to clear weapon and remove.

7. Adjust sway braces so weapon is centered on ejector rack unit. Tighten sway braces to 84 inch pounds. Tighten jam nuts.

8. Install fuze in accordance with applicable paragraphs 5-23 through 5-24.

9. Install steel nose plug and support cup if nose fuze is not installed.

WARNING

Ensure routing of arming wires does not interfere with ejector ram.

CAUTION

Do not preload arming wires (figure 5-17).

10. Install arming wires as applicable (figures 5-18 through 5-23).

11. Remove fuze/arming device safety pin/wire from fuze/arming device.

12. Repeat applicable steps 1 through 11 for remaining pylons to be loaded.

13. Install cartridges in breech chamber of each loaded ejector rack unit. Tighten breech caps 444 inch-pounds.

14. Place WEAPON LOADED sign in cockpit.

6-12. POSTLOADING, QUALITY ASSURANCE.

- 6-13. Postloading checks are accomplished immediately after weapons loading to ensure weapons are loaded properly/safely prior to launch.

1. Ensure armament switches are in OFF or SAFE position (table 5-1).

2. Ensure WEAPON LOADED sign is in cockpit.

3. Ensure ballistic plug position, located in left hand equipment bay, matches patching switch selection.



4. Ensure store indicator is set to B (ff).
5. Ensure pylon ejector rack unit safety pins are installed.
6. Sway braces adjusted; jam nuts are secured against sway brace.
7. Cartridges installed in each loaded ejector rack unit and breech caps tight and 0.037 inch throttles (orifices) installed.
8. Check that steel nose plug or nose fuze is installed.
9. Check arming wires for proper installation.
10. Check fuze/arming device for settings.
11. Check fuze/arming device safety pin/wire is removed.
12. Repeat applicable steps 5 through 11 for each loaded station.
13. Report status to proper authority.

6-14. PRIOR TO LAUNCH.

6-15. Prior to launch procedures consist of removal of safety devices and ensuring integrity of weapon system.

6-16. REARMING AREA. (BEFORE ENGINE TURN-UP):

1. Remove WEAPON LOADED sign from cockpit.
2. Remove pylon ejector rack unit safety pins.

6-17. AFTER LANDING OR GROUND ABORT.

6-18. After landing or ground abort procedures pertain to an aircraft that has returned from a mission with weapons that have not been expended or an aircraft which has ground aborted with weapons aboard.

6-19. SAFING (DEARMING AREA BEFORE ENGINE SHUTDOWN).

NOTE

There are no procedures performed prior to engine shutdown.

6-20. SAFING (DEARMING OR REARMING AREA IMMEDIATELY AFTER ENGINE SHUTDOWN).

WARNING

On MK 36/40 destructors, if arming wire is inadvertently withdrawn from the firing mechanism (tail component) or arming device, or red indication is visible in arming device window, clear area and notify proper authority immediately.

WARNING

Do not attempt to disarm a partially or fully armed fuze. Notify proper authority. If any component is missing, loose, or damaged, notify proper authority.

1. Check fuze(s)/arming device(s) is safe.
2. Check arming wires for proper installation.
3. Install ejector rack unit safety pin in all loaded stations.
4. External power not applied and aircraft grounded.
5. Check that all armament switches are in OFF or SAFE position (table 5-1).
6. As applicable, remove all arming wires from empty stations.

6-21. TURNAROUND. Turnaround procedures apply only to aircraft not requiring reconfiguration.

1. Ensure safing procedures have been completed.
2. Aircraft positioned in a designated area and grounded.
3. Check that firefighting equipment is available.

NOTE

Release and control system checks should be performed if operational conditions permit.

4. For stations to be loaded, perform the following:
  - a. Perform aircraft preparation/inspection. (Refer to paragraph 6-5).
  - b. Perform weapon inspection for weapon to be loaded. (Refer to paragraph 6-7).
  - c. Load weapon according to weapon loading procedures. (Refer to paragraph 6-9).
5. Perform postloading quality assurance check. (Refer to paragraph 6-12).
6. Perform prior-to-launch procedures. (Refer to paragraph 6-14).

6-22. WEAPON UNLOADING.

6-23. PREPARATION. Prepare aircraft as follows:

1. Aircraft positioned, firefighting equipment available.
2. External power not applied and aircraft grounded.
3. Check that all armament switches are in OFF or SAFE position (table 5-1).
4. (Loaded Stations). Safety pins installed.



5. Remove pylon cartridges.

WARNING

On MK 36/40 destructors, if arming wire is withdrawn from the firing mechanism (tail component) or arming device, or red indication is visible in arming device inspection window, clear area and notify proper authority immediately.

6. Install fuze/arming device safety pins/wires.
7. Remove arming wires from arming solenoids.
8. (If applicable). Remove arming wire(s) from fuze(s).
9. (If applicable). Remove nose fuze.

CAUTION

Ensure unloading and handling equipment is configured to safely accept weapon being unloaded.

10. Unloading equipment positioned/rigged for unloading.

11. Sway braces retracted.

6-24. UNLOADING. Unload weapon as follows:

1. Support weapon with handling equipment.
2. Raise weapon until lugs float in ejector rack unit hooks.
3. Remove ejector rack unit safety pin.
4. Open ejector rack unit hooks and lower weapon. Remove weapon from area.
5. Repeat steps 1 through 4 for each weapon to be unloaded.



## SECTION VII

### BOMBS RETARD

#### 7-1. INTRODUCTION.

7-2. This section contains necessary AV-8A loading/unloading information for the weapons listed below. Procedures contain information necessary to assure safety and reliability, provided the assumptions in paragraph 1-22 have been complied with.

#### WARNING

This manual does not authorize station loading for flight. For specific authorization, refer to Tactical Manual.

MK 36 MOD 1 Destructor w/MK 15 Fin  
MK 81 w/MK 14 Fin  
MK 82 w/MK 15 Fin  
MK 124 Practice Bomb w/MK 15 Fin

#### 7-3. GROUND SUPPORT EQUIPMENT (GSE).

7-4. For ground support equipment refer to tables 2-4 and 2-5. Test equipment and special tools needed to perform loading operations are as follows:

1. Test Equipment
  - a. NONE
2. Special Tools
  - a. Ground Safety Pin/Manual Release Tool

#### 7-5. AIRCRAFT PREPARATION/INSPECTION.

7-6. The following procedures will ensure aircraft is in a safe condition prior to performing loading operations. Perform procedures in sequence indicated; certain steps will not apply depending upon aircraft configuration.

1. Check that aircraft is configured to receive weapons in accordance with section III.
2. Check that required release and control system checks have been completed in accordance with section IV.
3. Check that aircraft common procedures have been complied with in accordance with section V.
4. Ensure that ballistics plug is installed.
5. Check pylon for the following:
  - a. Breech caps and cartridges removed.
  - b. Ensure 0.037 inch throttles (orifice) are installed in stations to be loaded. Tighten to 84 inch-pounds.
  - c. Ensure breech housing is clean and very lightly oiled.

d. Ground safety pin/manual release tool installed in cocking insert.

e. Sway brace adjusted and jam nut positioned below sway brace arm.

f. Ejector rack unit hooks are open.

g. Repeat steps a through f for each station to be loaded.

#### 7-7. WEAPON INSPECTION.

7-8. If inspection of a weapon reveals that it is not acceptable for loading and can not be made acceptable in a reasonable period of time, the weapon shall be returned to the assembly area. Notify proper authority.

1. Inspect MK 81 with MK 14 fin for the following:

- a. Fin release guide tube secure.

#### NOTE

Fins will be in the X configuration.

b. Check that bomb fins are aligned and positioned with respect to bomb lugs.

c. Setscrews which secures fin to bomb are secure and at least 1/16 inch below outside diameter of flange.

2. Inspect MK 36 Destructor, MK 82, and MK 124 with MK 15 fin for the following:

#### WARNING

On MK 36 destructors, if arming wire in inadvertently withdrawn from the tail mechanism (tail component) or arming device, or if red indication is visible in arming device inspection window, clear area and notify proper authority immediately.

a. (MK 36). Arming device safe; safety wire installed.

b. (MK 36). Check that arming wire for firing mechanism is installed and extends below fin; check tagged safety pin is removed.

#### NOTE

Fins will be in the X configuration.

c. Check that bomb fins are aligned and positioned with respect to bomb lugs.

d. Fin release wire guide tube securely installed.

e. Fin setscrews on MK 15 MOD 3/4 secure and at least 1/16 inch below outside diameter of flange.



- f. Ears of retaining ring on MK 15 MODS 1/2 fin at least 1 3/4 inches apart and pointed forward.
- g. Garter spring on MK 15 MODS 1/2 fin firmly seated in groove.
- h. Fin release band safety pin installed.
- i. (MK 36). Check that water tight plug is installed in electric cable well of bomb.

3. Inspect fuze in accordance with applicable paragraphs 5-17 through 5-24.

4. Nose and tail shipping plugs removed as required.

5. Fuze cavities not damaged and free of foreign material.

6. (Practice Bomb). Signal cartridge installed.

7. Inspect suspension lug for proper alignment. Use MS3314/MAU-76 lug. (Suspension lug shoulders are flush with lug wells, then back out 1 1/2 turns and align; reject bomb if this criteria cannot be made.)

#### 7-9. WEAPON LOADING.

7-10. PREPARATION. Check for the following:

1. Aircraft preparation/inspection (paragraph 7-5) and weapon inspection (paragraph 7-7) is completed.

#### WARNING

Electrical power shall not be applied to the aircraft at any time during loading procedures.

- 2. Ensure battery switches are OFF.
- 3. External power removed from aircraft.
- 4. Aircraft grounded.
- 5. Check armament switches are in OFF or SAFE position (table 5-1).
- 6. Patching switches located on weapon control panel set as required (table 5-2).
- 7. Store type indicator located on weapon control panel set to B (r) position.
- 8. Weapon/loading equipment positioned/rigged for loading.

7-11. LOADING. Load as follows:

#### WARNING

On MK 36 destructor, if arming wire is inadvertently withdrawn from the firing mechanism (tail component) or arming device, or red indication is visible in arming device inspection window, clear area and notify proper authority immediately.

1. Using available authorized loading equipment, raise weapon until bomb lugs are aligned with ejector rack unit hooks.

2. Latch ejector rack unit.

3. Visually inspect ejector rack unit indicates locked. (Operating arm not visible in ground safety pin hole).

4. Gently shake weapon to ensure weapon is supported by ejector rack unit hooks.

5. Install ejector rack unit safety pin.

6. Lower loading equipment sufficiently to clear weapon and remove.

7. Adjust sway braces so weapon is centered on ejector rack unit. Tighten sway braces to 84 inch-pounds. Tighten jam nuts.

8. Install fuze in accordance with paragraph 5-24.

#### WARNING

Ensure routing of arming wires does not interfere with ejector ram.

#### CAUTION

Do not preload arming wires (figure 5-17).

9. Install arming wires as applicable (figure 5-18 through 5-23).

10. Remove fuze/arming device safety pin/wire from fuze/arming device.

11. Remove fin release band safety pin.

12. Install cartridges in breech chamber of each loaded ejector rack unit. Tighten breech cap 444 inch-pounds.

13. Repeat applicable steps 1 through 12 for remaining pylons to be loaded.

14. Place WEAPON LOADED sign in cockpit.

#### 7-12. POSTLOADING, QUALITY ASSURANCE.

7-13. Postloading checks are accomplished immediately after weapons loading to ensure weapons are loaded properly/safely prior to launch.

1. Ensure armament switches are in OFF or SAFE position (table 5-1).

2. Ensure WEAPON LOADED sign is in cockpit.

3. Ensure ballistic plug position, located in left hand equipment bay, matches patching switch selection.

4. Ensure store indicator is set to B (r).



5. Ensure pylon ejector rack unit safety pins are installed.

6. Sway braces adjusted; jam nuts are secure against sway brace.

7. Cartridges installed in each loaded ejector rack unit and breech caps tight and 0.037 inch throttles (orifice) installed.

8. Check arming wires for proper installation.

9. Check fuze/arming device for settings.

10. Check fuze/arming device safety pin/wire is removed.

11. Fin release wire installed; safety pin removed.

12. Repeat steps 5 through 11 for each loaded station.

13. Report status to proper authority.

#### 7-14. PRIOR TO LAUNCH.

7-15. Prior to launch procedures consists of removal of safety devices and ensuring integrity of weapon system.

7-16. REARMING AREA. (BEFORE ENGINE TURN-UP):

1. Remove WEAPON LOADED sign from cockpit.

2. Remove pylon ejector rack unit safety pins.

#### 7-17. AFTER LANDING OR GROUND ABORT.

7-18. After landing or ground abort procedures pertain to an aircraft that has returned from a mission with weapons that have not been expended or an aircraft which has ground aborted with weapons aboard.

7-19. SAFING (DEARMING AREA BEFORE ENGINE SHUTDOWN).

#### NOTE

There are no procedures performed prior to engine shutdown.

7-20. SAFING (DEARMING OR REARMING AREA IMMEDIATELY AFTER ENGINE SHUTDOWN).

#### WARNING

On MK 36 destructor if arming wire is inadvertently withdrawn from the firing mechanism (tail component) or arming device, or red indication is visible in arming device window, clear area and notify proper authority immediately.

Do not attempt to disarm a partially or fully armed fuze. Notify proper authority.

If any component is missing, loose, or damaged, notify proper authority.

1. Check fuze(s)/arming device(s) is safe.

2. Check arming wires for proper installation.

3. Install ejector rack unit safety pin in all loaded stations.

4. External power not applied and aircraft grounded.

5. Check that all armament switches are in OFF or SAFE position (table 5-1).

6. As applicable, remove all arming wires from empty stations.

7-21. TURNAROUND. Turnaround procedures apply only to aircraft not requiring reconfiguration.

1. Ensure safing procedures have been completed.

2. Aircraft positioned in a designated area and grounded.

3. Check that firefighting equipment is available.

#### NOTE

Release and control system checks should be performed if operational conditions permit.

4. For stations to be loaded, perform the following:

a. Perform aircraft preparation/inspection. (Refer to paragraph 7-5).

b. Perform weapon inspection for weapon to be loaded. (Refer to paragraph 7-7).

c. Load weapon according to weapon loading procedures. (Refer to paragraph 7-9).

5. Perform postloading quality assurance check. (Refer to paragraph 7-12).

6. Perform prior-to-launch procedures. (Refer to paragraph 7-14).

#### 7-22. WEAPON UNLOADING.

7-23. PREPARATION. Prepare aircraft as follows:

1. Aircraft positioned, firefighting equipment available.

2. External power not applied and aircraft grounded.

3. Check that all armament switches are in OFF or SAFE position (table 5-1).

4. (Loaded stations). Safety pins installed.

5. Remove pylon cartridges.



WARNING

On MK 36 destructors, if arming wire is inadvertently withdrawn from the firing mechanism (tail component) or arming device, or red indication is visible in arming device inspection window, clear area and notify proper authority immediately.

6. Install fuze/arming device safety pins/wires.
7. (If applicable). Install fin release band safety pin.
8. Remove arming wires from arming solenoids.
9. (If applicable). Remove arming wire(s) from fuze(s).
10. (If applicable). Remove nose fuze.

CAUTION

Ensure unloading and handling equipment is configured to safely accept weapon.

11. Unloading equipment positioned/rigged for unloading.
12. Sway braces retracted.
- 7-24. UNLOADING. Unload weapon as follows:
  1. Support weapon with handling equipment.
  2. Raise weapon until lugs float in ejector rack unit hooks.
  3. Remove pylon ejector rack unit safety pin.
  4. Open ejector rack unit hook and lower weapon. Remove weapon from area.
  5. Repeat applicable steps 1 through 4 for each weapon to be unloaded.



## SECTION VIII

### FIRE BOMBS

#### 8-1. INTRODUCTION.

8-2. This section contains necessary AV-8A loading/unloading information for the weapons listed below. Procedures contain information necessary to assure safety and reliability, provided the assumptions in paragraph 1-22 have been complied with.

#### WARNING

This manual does not authorize station loading for flight. For specific authorization, refer to Tactical Manual.

MK 77 MOD 2  
MK 77 MOD 4

#### 8-3. GROUND SUPPORT EQUIPMENT (GSE).

8-4. For ground support equipment refer to tables 2-4 and 2-5. Test equipment and special tools needed to perform loading operations are as follows:

##### 1. Test Equipment.

a. None.

##### 2. Special Tools.

a. Ground Safety Pin/Manual Release Tool.

#### 8-5. AIRCRAFT PREPARATION/INSPECTION.

8-6. The following procedures will ensure aircraft is in a safe condition prior to performing loading operations. Perform procedures in sequence indicated; certain steps will not apply depending upon aircraft configuration.

1. Check that aircraft is configured to receive weapons in accordance with section III.

2. Check that required release and control system checks have been completed in accordance with section IV.

3. Check that aircraft common procedures have been complied with in accordance with section V.

4. Ensure that ballistics plug is installed.

5. Check pylon for the following:

a. Breech caps and cartridges removed.

b. Ensure 0.037 inch throttles (orifice) are installed in the outboard pylon ejector unit and 0.156 inch throttles (orifice) are installed in the inboard/centerline pylon ejector rack unit. Tighten to 84 inch-pounds.

c. Ensure breech housing is clean and very lightly oiled.

d. Ground safety pin/manual release tool installed in cocking insert.

e. Sway brace adjusted and jam nut positioned below sway brace arm.

f. Ejector rack unit hooks are open.

g. Repeat step 5 for each station to be loaded.

#### 8-7. WEAPON INSPECTION.

8-8. If inspection of a weapon reveals that is not acceptable for loading and can not be made acceptable in a reasonable period of time, the weapon shall be returned to the assembly area. Notify proper authority.

1. Inspect weapon for the following:

#### CAUTION

Observe all standard safety precautions for handling gasoline when handling fire bombs.

a. Weapon filled; not damaged or leaking.

b. Bomb lugs for proper alignment, security or damage.

c. (MK 77 MOD 2). Nose cone and nose adapter ring are removed.

d. (MK 77 MOD 2). Filling hole caps properly installed (figure 8-1).

e. (MK 77 MOD 4). Filling hole caps or MK 273 MOD 0 igniter properly installed (figure 8-1).

f. Igniter/fuze cavity not damaged, free of foreign material.

#### WARNING

Fuzes should not be installed in the igniters until after bombs are loaded on the aircraft. Use caution to prevent striking the fuze during handling.

2. Inspect AN-M173A1/M918 fuze as follows (figure 8-2). General fuze safety precautions must be complied with in accordance with paragraph 5-15.

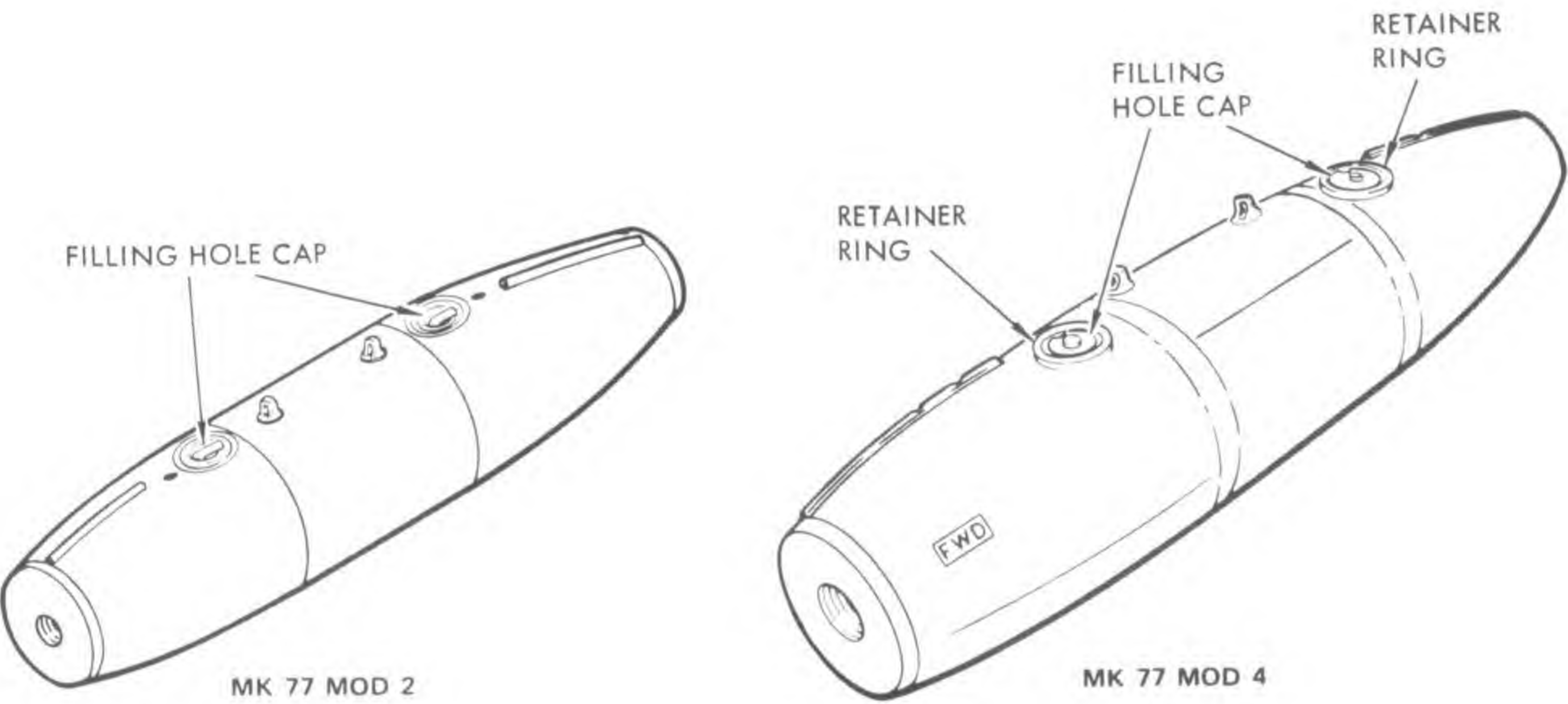
a. Safety cotter pin installed in vane hub.

#### WARNING

If clearance is greater than 1/8 inch, fuze is partially or fully armed. A missing arming vane indicates a fully armed fuze.

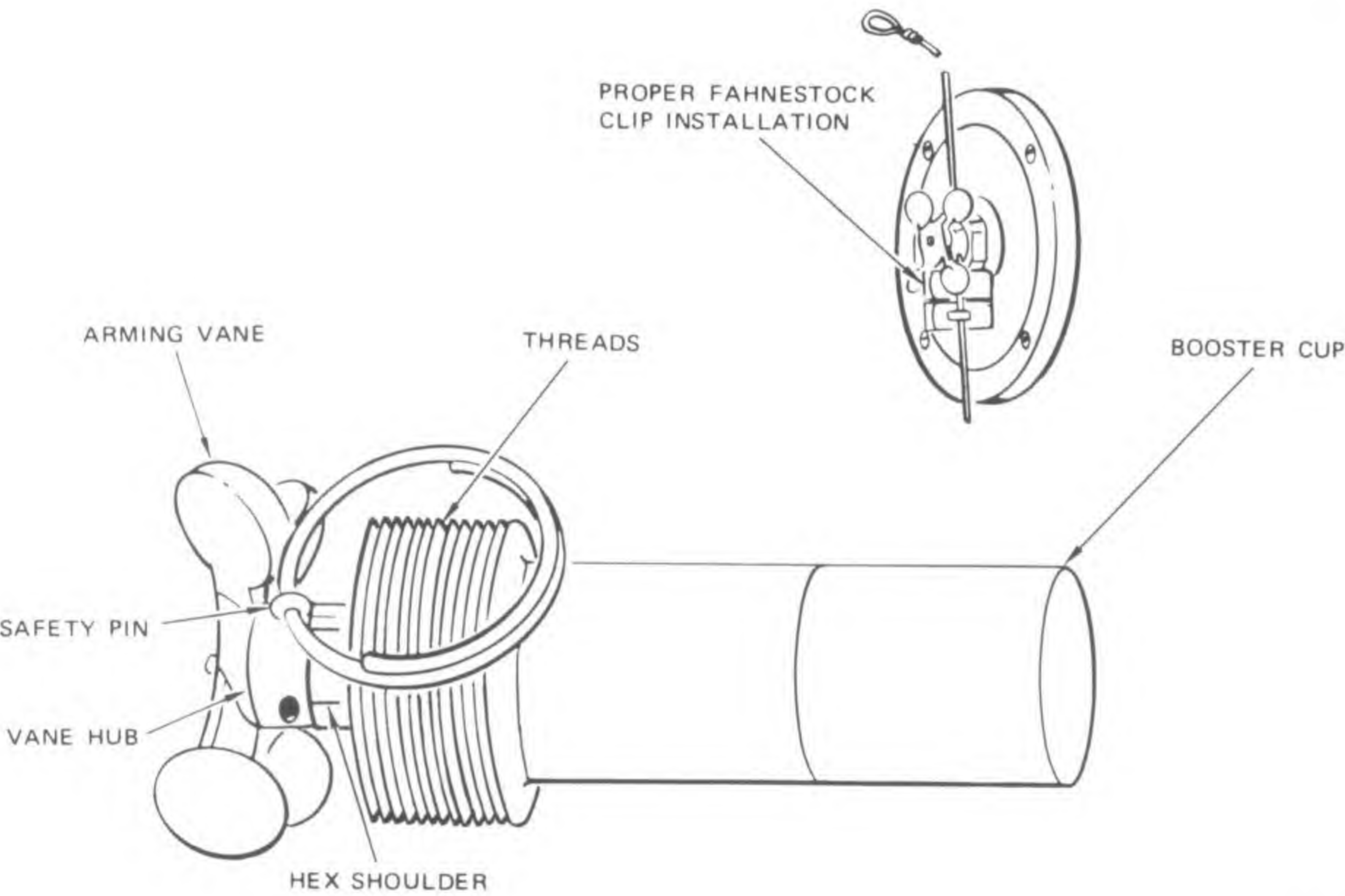
b. Measure clearance between the vane hub and hex shoulder of the fuze for 1/8 inch or less.





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Figure 8-1. MK 77 Fire Bombs



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Figure 8-2. AN-M173A1/M918 Mechanical Bomb Fuze



c. External surfaces and threads clean and not damaged.

d. No gap between fuze body and fuze head.

e. Booster cup secure to fuze body.

f. Arming vane not damaged or deformed and securely attached.

#### CAUTION

AN-M173A1 fuze is for use only with AN-M23A1 igniters; M918 fuze is for use only with the MK 273 MOD 0 igniters. Use of improper fuze/igniter combination will result in dud weapon.

g. Check decal on top face of fuze head to ensure that correct fuze is being used.

h. Repeat steps a through g for each fuze.

#### WARNING

The white-phosphorous filler in the AN-M23A1 igniter is dangerous when exposed to air. If igniter is leaking, notify proper authority immediately for removal and disposal.

3. Inspect AN-M23A1 igniter as follows:

a. Check that exterior is not damaged.

b. Ensure fuze cavity not damaged and free of foreign matter.

c. Repeat steps a and b for each igniter.

8-9. WEAPON LOADING.

8-10. PREPARATION. Check for the following:

1. Aircraft preparation/inspection (paragraph 8-5) and weapon inspection (paragraph 8-7) is completed.

#### WARNING

Electrical power shall not be applied to the aircraft at any time during loading procedures.

2. Ensure battery switches are OFF.

3. External power removed from aircraft.

4. Aircraft grounded.

5. Check armament switches are in OFF or SAFE position (table 5-1).

6. Patching switches located on weapon control panel set as required (table 5-2).

7. Store type indicator located on weapon control panel set to F/B position.

8. Weapon/loading equipment positioned/rigged for loading.

8-11. LOADING. Load as follows:

1. Using available authorized loading equipment, raise weapon until bomb lugs are aligned with ejector rack unit hooks.

2. Latch ejector rack unit hooks.

3. Visually inspect ejector rack unit indicates locked. (Operating arm not visible in ground safety pin hole.)

4. Gently shake weapon to ensure weapon is supported by ejector rack unit hooks.

5. Install ejector rack unit safety pin.

6. Lower loading equipment sufficiently to clear weapon and remove.

7. Adjust sway braces so weapon is centered on ejector rack unit. Tighten sway braces to 84 inch-pounds. Tighten jam nuts.

8. Install fuze as follows:

a. AN-M173A1 Fuze and Igniter.

#### CAUTION

The AN-M173A1 fuze is for use only with AN-M23A1 igniters installed in nose and tail wells of MK 77 MOD 2 or 4 firebombs.

(1) Ensure that threads in nose and tail wells of bomb are clean and undamaged.

#### WARNING

The white-phosphorous filler in the AN-M23A1 igniter is dangerous when exposed to air. If igniter is leaking, notify proper authority immediately for removal and disposal.

(2) Ensure that both male and female threads of AN-M23A1 igniter are clean and undamaged and no corrosion or leakage of igniter evident.

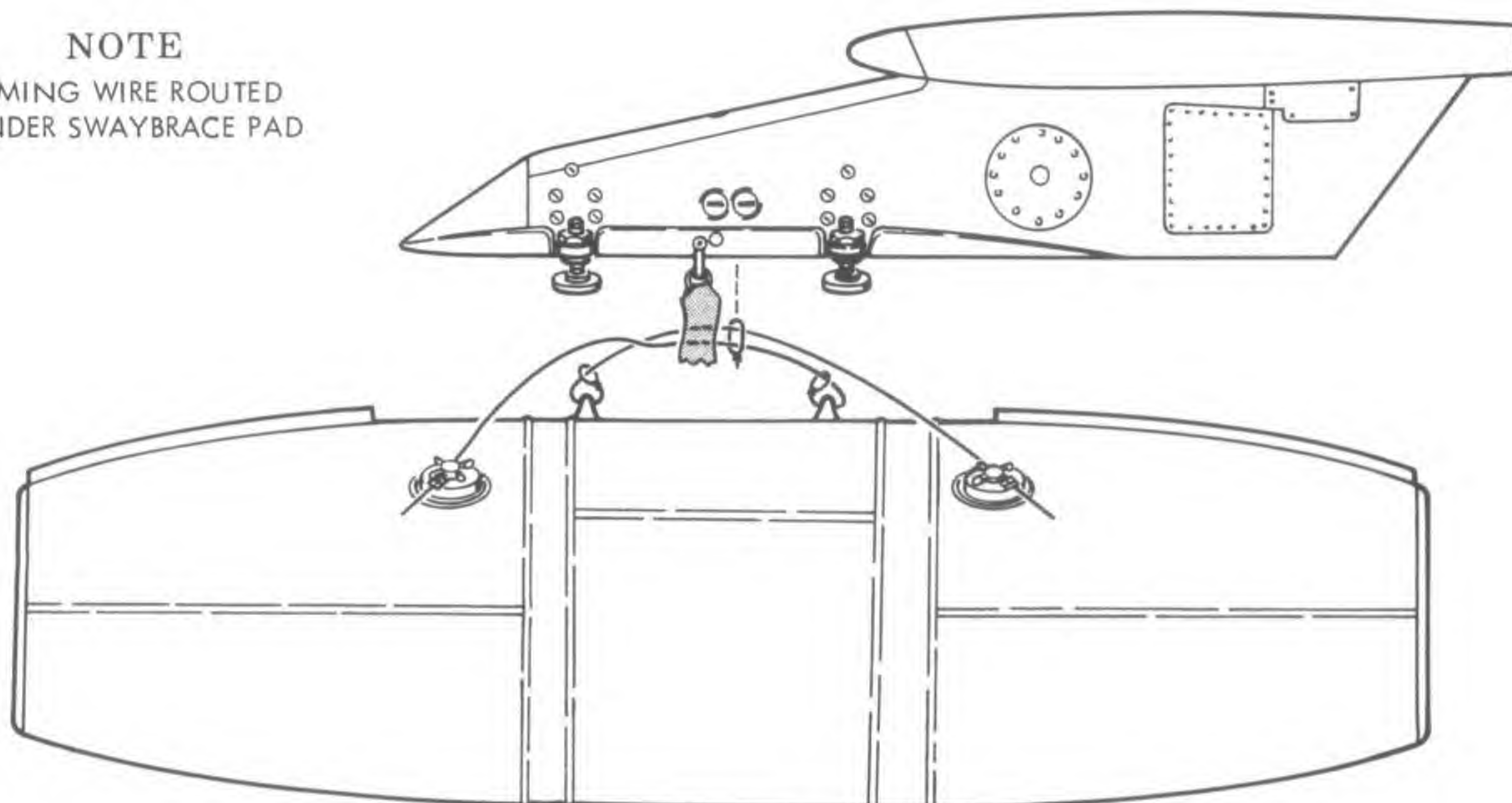
(3) Screw AN-M23A1 igniters in nose and tail wells handtight.

(4) Screw AN-M173A1 fuze into igniter. Tighten with open end 11/16 inch wrench. When tight, arming wire holes must align with center of closest bomb lug.

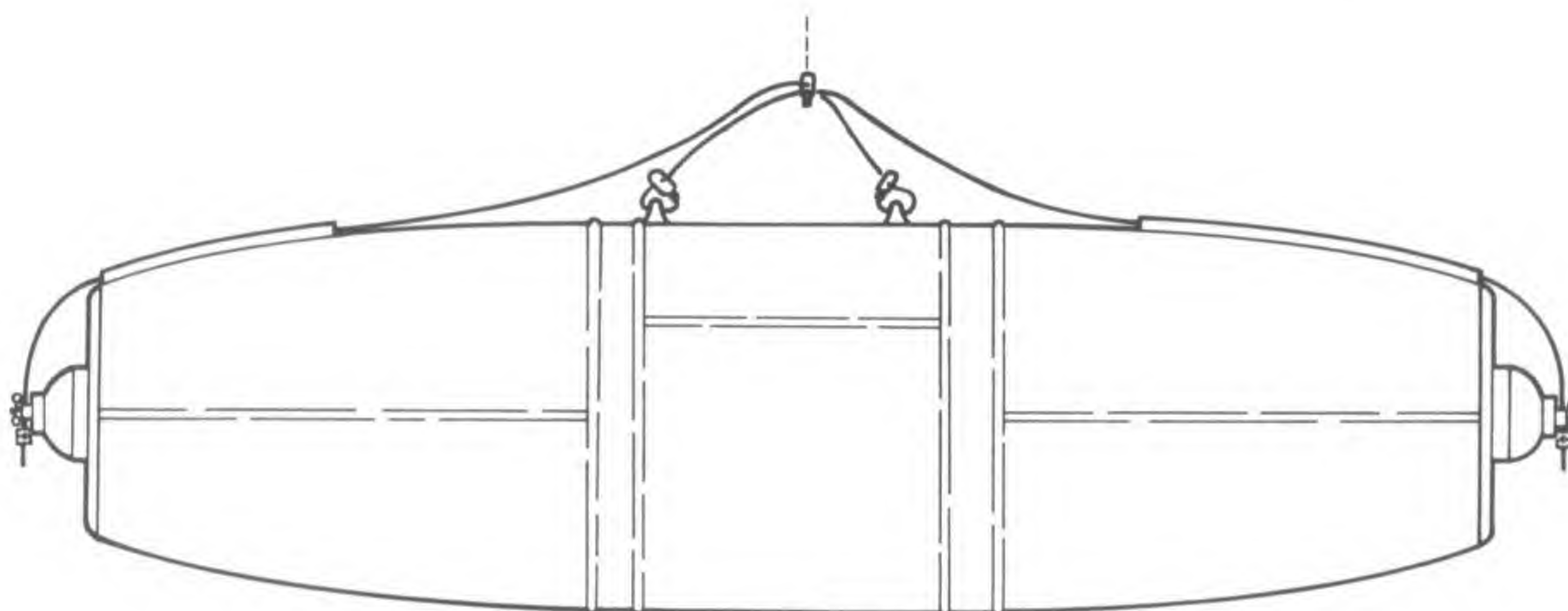


**NOTE**

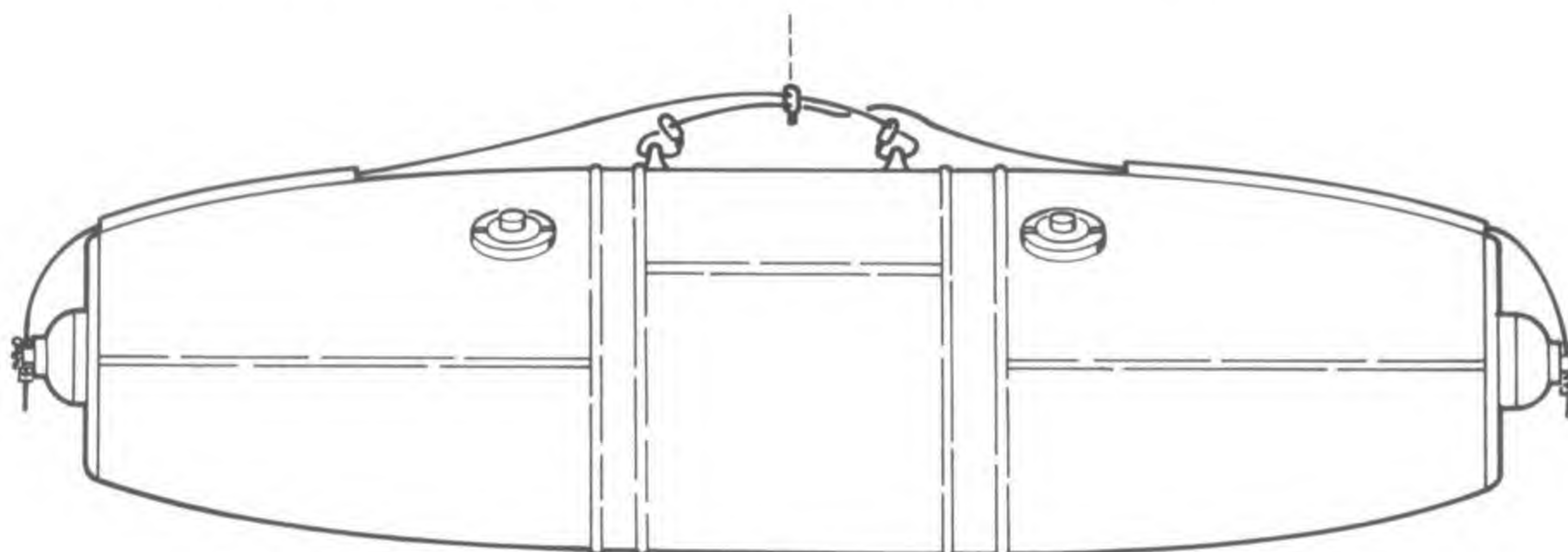
ARMING WIRE ROUTED  
UNDER SWAYBRACE PAD



MOD 4 WITH (M918 FUZE AND MK 273 IGNITER) PRIMARY FUZING



MOD 2 WITH (M173A1 FUZE AND M23A1 IGNITER) FUZING



MOD 4 WITH (M173A1 FUZE AND M23A1 IGNITER) ALTERNATE FUZING

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Figure 8-3. Arming Wire Installation



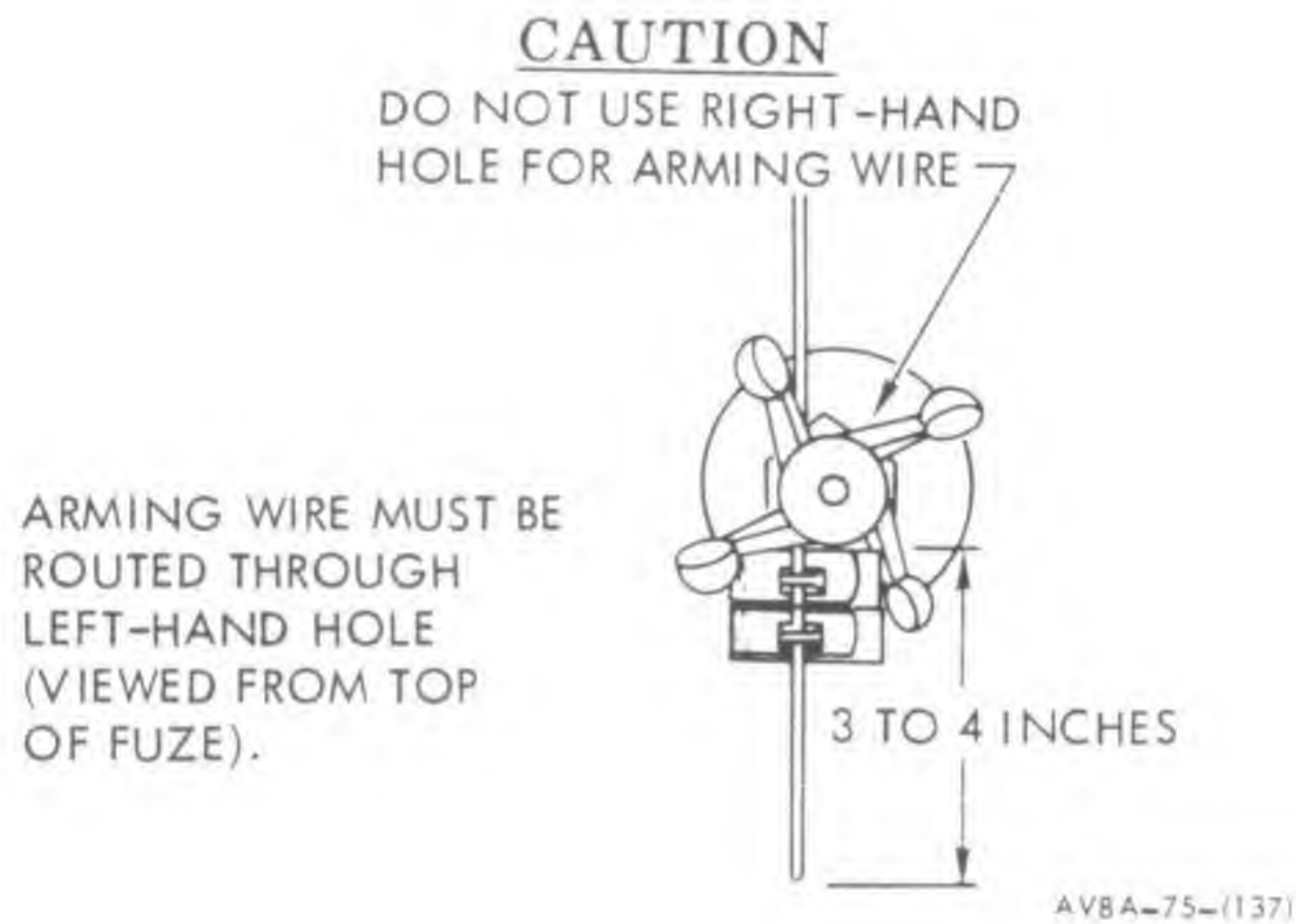


Figure 8-4. Arming Wire Thru Left Arming Wire Hole

b. M918 Fuze and Igniter.

**CAUTION**

The M918 fuze is for use only with the MK 273 MOD 0 igniter installed in the side wells of the MK 77 MOD 4 firebomb.

- (1) Ensure that MK 273 MOD 0 igniters are installed in both filler holes of the bomb and retainer rings are tight. No indication of gel leakage shall be evident.
- (2) Ensure that fuze cavities in igniters are clean and threads are undamaged.
- (3) Screw M918 fuze into igniter. Tighten with open-end 11/16-inch wrench. When tight, arming-wire holes must align with center of closest bomb lug.

**WARNING**

Ensure routing of arming wires does not interfere with ejector ram.

**CAUTION**

Do not preload arming wires (figure 5-17).

9. Install arming wire (figure 8-3).

- a. Insert arming wire through the left arming wire hole (figure 8-4).
- b. Install two Fahnestock clips. The first clip must be installed snugly against the vane hub and positioned so that both tabs of the clip extend upward between the blades of the vane. Install second Fahnestock clip against first clip.
- c. Cut excess arming wire 3 to 4 inches from arming-vane hub.
- d. Remove safety cotter pin and tag.

10. Repeat applicable steps 1 through 9 for remaining pylons to be loaded.

11. Install cartridges in breech chamber of each loaded ejector rack unit. Tighten breech cap 444 inch-pounds.

12. Place WEAPON LOADED sign in cockpit.

8-12. POSTLOADING, QUALITY ASSURANCE.

8-13. Postloading checks are accomplished immediately after weapons loading to ensure weapons are loaded properly/safely prior to launch.

1. Ensure armament switches are in OFF or SAFE position (table 5-1).

2. Ensure WEAPON LOADED sign is in cockpit.

3. Ensure ballistic plug position located in left hand equipment bay matches patching switch selection.

4. Ensure store indicator is set to F/B.

5. Ensure pylon ejector rack unit safety pins are installed.

6. Sway braces adjusted; jam nuts are secured against sway brace.

7. Cartridges installed in each loaded ejector rack unit and breech caps tight and 0.037 inch throttles (orifice) installed in outboard pylons, 0.156 inch throttles (orifice) installed in inboard/centerline pylons.

8. Inspect fire bomb for the following:

- a. Weapon not leaking or damaged.
- b. Proper igniter/fuze combination installed.
- c. Arming wires properly installed and two Fahnestock clips installed on arming wires.
- d. Retainer rings tight.
- e. Safety cotter pin removed from fuze.

9. Repeat applicable steps 5 through 8 for each loaded station.

10. Report status to proper authority.

8-14. PRIOR TO LAUNCH.

8-15. Prior to launch procedures consist of removal of safety devices and ensuring integrity of weapon system.

8-16. REARMING AREA. (BEFORE ENGINE TURNUP):

1. Remove WEAPON LOADED sign from cockpit.
2. Remove pylon ejector rack unit safety pins.



8-17. AFTER LANDING OR GROUND ABORT.

8-18. After landing or ground abort procedures pertain to an aircraft that has returned from a mission with weapons that have not been expended or an aircraft which has ground aborted with weapons aboard.

8-19. SAFING. (DEARMING AREA BEFORE ENGINE SHUTDOWN)

NOTE

There are no procedures performed prior to engine shutdown.

8-20. SAFING. (DEARMING OR REARMING AREA IMMEDIATELY AFTER ENGINE SHUTDOWN)

WARNING

Do not attempt to disarm a partially or fully armed fuze. Notify proper authority.

If any component is missing, loose, or damaged, notify proper authority.

1. Check fuze(s) is safe.
2. Check arming wires for proper installation.
3. Install ejector rack unit safety pin in all loaded stations.
4. External power not applied and aircraft grounded.
5. Check that all armament switches are in OFF or SAFE position (table 5-1).
6. As applicable, remove all arming wires from empty stations.

8-21. TURNAROUND. Turnaround procedures apply only to aircraft not requiring reconfiguration.

1. Ensure safing procedures have been completed.
2. Aircraft positioned in a designated area and grounded.
3. Check that firefighting equipment is available.

NOTE

Release and control system checks should be performed if operational conditions permit.

4. For stations to be loaded, perform the following:
  - a. Perform aircraft preparation/inspection. (Refer to paragraph 8-5.)
  - b. Perform weapon inspection for weapon to be loaded. (Refer to paragraph 8-7.)
  - c. Load weapon according to weapon loading procedures. (Refer to paragraph 8-9.)

5. Perform postloading quality assurance check. (Refer to paragraph 8-12.)

6. Perform prior-to-launch procedures. (Refer to paragraph 8-14.)

8-22. WEAPON UNLOADING.

8-23. PREPARATION. Prepare aircraft as follows:

1. Aircraft positioned, firefighting equipment available.
2. External power not applied and aircraft grounded.
3. Check that all armament switches are in OFF or SAFE position (table 5-1).
4. (Loaded stations). Safety pin installed.
5. Remove pylon cartridges.

WARNING

If any component is missing, loose, or damaged, notify proper authority.

6. Ensure arming wire is installed in vane hub.
7. Install safety pin in fuze.
8. Remove arming wires from arming solenoids.
9. Remove arming wire from fuze.
10. Remove fuze as follows:

CAUTION

Do not use vane to remove fuze.

NOTE

The AN-M173A1 and M23A1 may be removed separately or as a unit; they should be separated as soon as practicable.

- a. Using a 11/16-inch wrench, unscrew each fuze from bomb.

CAUTION

Do not remove MK 273 MOD 0 igniter.

- b. (If applicable). Remove M23A1 igniter from bomb.
- c. Place fuzes and igniters in separate handling container.



CAUTION

Ensure unloading and handling equipment is configured to safely accept weapon being unloaded.

11. Unloading equipment positioned/rigged for unloading.

12. Sway braces retracted.

8-24. UNLOADING. Unload weapon as follows:

1. Support weapon with handling equipment.

2. Raise weapon until lugs float in ejector rack unit hooks.

3. Remove pylon ejector rack unit safety pin.

4. Open ejector rack unit hooks and lower weapon. Remove weapon from area.

5. Repeat steps 1 through 4 for each weapon to be unloaded.







SECTION IX  
PYROTECHNICS

9-1. INTRODUCTION.

9-2. This section contains necessary AV-8A loading/unloading information for the weapons listed below. Procedures contain information necessary to assure safety and reliability, provided the assumptions in paragraph 1-22 have been complied with.

WARNING

This manual does not authorize station loading for flight. For specific authorization, refer to Tactical Manual.

SUU-40 and SUU-44 DISPENSER UNIT, PRELOADED WITH MK 24/45 AIRCRAFT FLARES

9-3. GROUND SUPPORT EQUIPMENT (GSE).

9-4. For ground support equipment refer to tables 2-4 and 2-5. Test equipment and special tools needed to perform loading operations are as follows:

1. Test Equipment.

- a. None

2. Special Tools.

- a. Flare Unloading and Breech Removal Tool (P/N 67A312C1).

- b. Ground Safety Pin/Manual Release Tool.

9-5. AIRCRAFT PREPARATION/INSPECTION.

9-6. The following procedures will ensure aircraft is in a safe condition prior to performing loading operation. Perform procedures in sequence indicated; certain step will not apply depending upon aircraft configuration.

1. Check that aircraft is configured to receive weapons in accordance with section III.

2. Check that required release and control system checks have been completed in accordance with section IV.

3. Check that aircraft common procedures have been complied with in accordance with section V.

4. Check pylon for the following:

- a. Breech caps and cartridges removed.

- b. Ensure 0.037 inch throttles (orifice) are installed in stations to be loaded. Tighten to 84 inch-pounds.

- c. Ensure breech housing is clean and very lightly oiled.

- d. Ground safety pin/manual release tool installed in cocking insert.

- e. Sway brace adjusted and jam nut positioned below sway brace arm.

- f. Ejector rack unit hooks are open.

- g. Repeat steps a through f for each station to be loaded.

9-7. WEAPON INSPECTION.

9-8. If inspection of a weapon reveals that it is not acceptable for loading and can not be made acceptable in a reasonable period of time, the weapon shall be returned to the assembly area. Notify proper authority.

1. Ensure detent safety pin is installed (figures 9-1 and 9-2).

2. Ensure breech caps and cartridges are removed; breeches installed.

3. Electrical connectors/spider assembly not damaged.

4. Flare ejection (and MK 24 ignition) dial settings marked on exterior of dispenser; exterior not damaged.

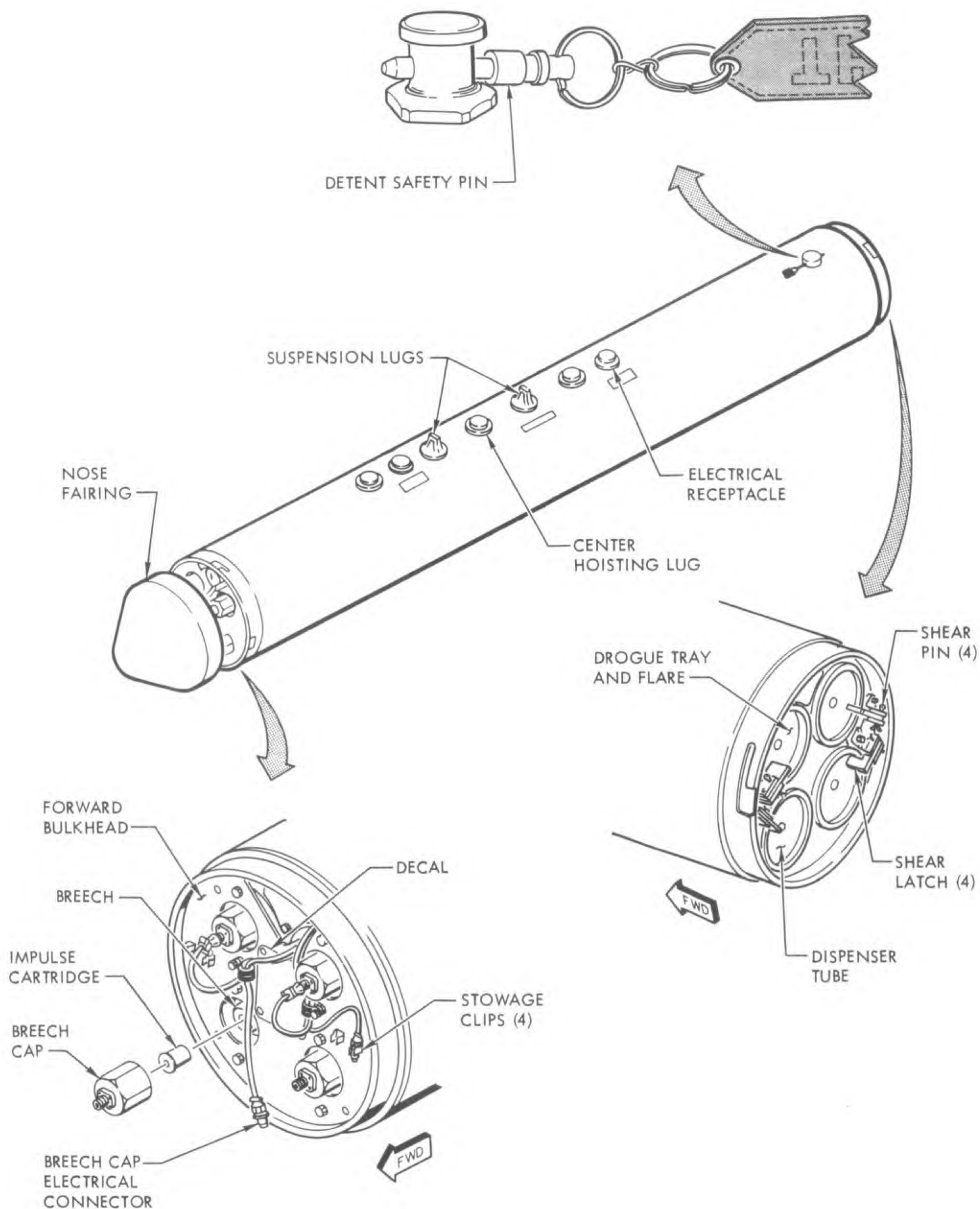
5. Flare plastic seal ends aft.

6. Shear latches closed; shear pins installed from top of latches, ends spread (figures 9-1 and 9-2).

7. Ensure breech caps and nose fairing are available and not damaged.

8. Repeat steps 1 through 7 for each dispenser to be loaded.

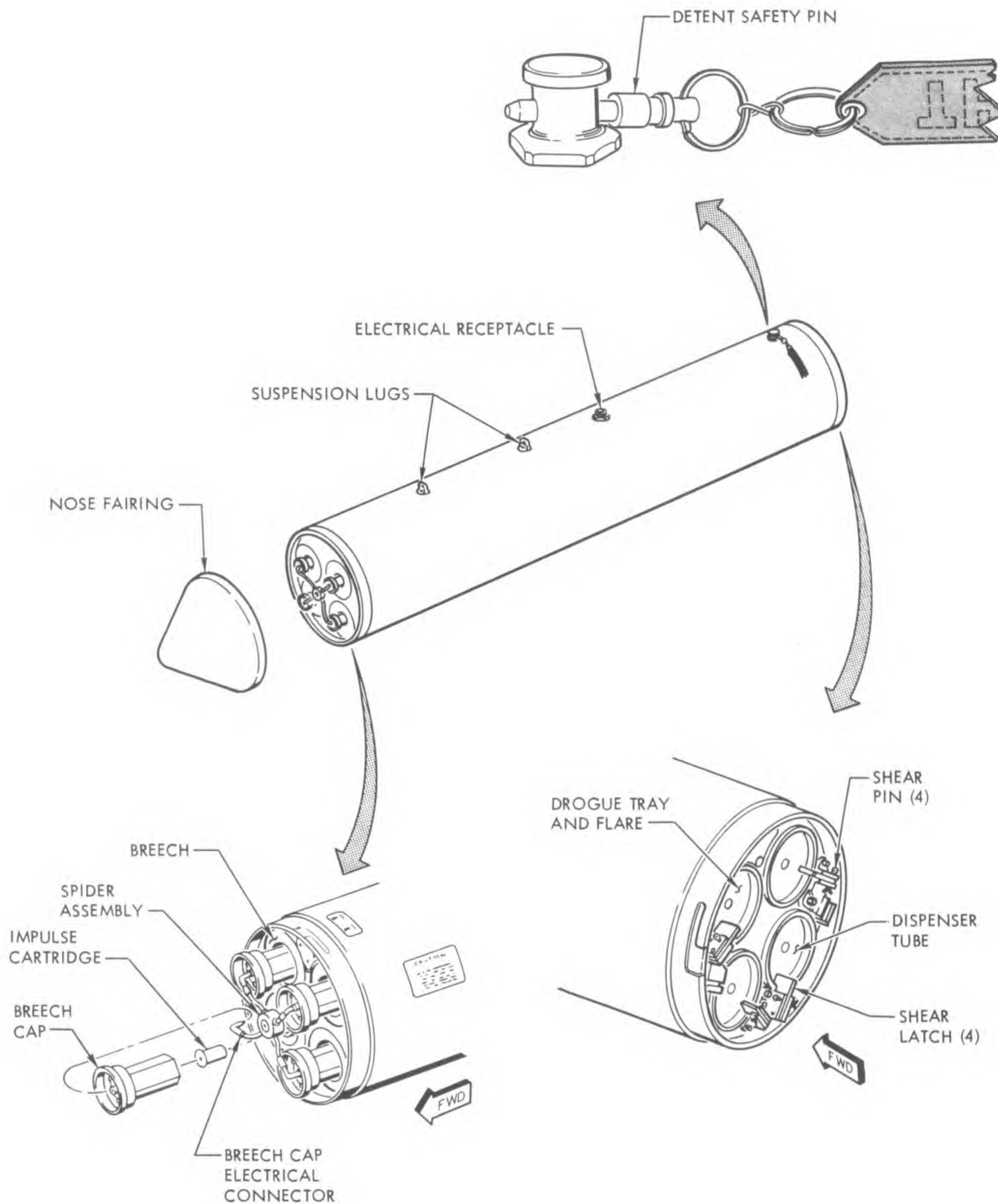




AV8A-75-(138)

Figure 9-1. SUU-40/A Dispenser Inspection





AV8A-75-(139)

Figure 9-2. SUU-44/A Dispenser Inspection



9-9. WEAPON LOADING.

9-10. PREPARATION. Check for the following:

1. Aircraft preparation/inspection (paragraph 9-5) and weapon inspection (paragraph 9-7) is completed.

WARNING

Electrical power shall not be applied to the aircraft at any time during loading procedures.

2. Ensure battery switches are OFF.
3. External power removed from aircraft.
4. Aircraft grounded.
5. Check armament switches are in OFF or SAFE position (table 5-1).
6. Patching switches located on weapon control panel set as required (table 5-2).
7. Store type indicator located on weapon control panel set to R/P position.
8. Weapon/loading equipment positioned/rigged for loading.

9-11. LOADING. Load as follows:

1. Using available authorized loading equipment, raise weapon until weapon lugs are aligned with ejector rack unit hooks.
2. Latch ejector rack unit hooks.
3. Visually inspect ejector rack unit indicates locked. (Operating arm not visible in ground safety pin hole).
4. Gently shake weapon to ensure weapon is supported by ejector rack unit hooks.
5. Install ejector rack unit safety pin.
6. Lower loading equipment sufficiently to clear weapon and remove.
7. Adjust sway braces so weapon is centered on ejector rack unit. Tighten sway braces to 84 inch-pounds. Tighten jam nuts.

WARNING

Remain clear of aft end of SUU-40/44 dispenser when cartridges are installed.

8. Install MK 2 cartridges in each dispenser breech and install breech caps.

9. Connect breech cap electrical connector.

10. Mark cartridge installation data on dispenser exterior.

11. Install nose fairing.

12. Connect SNEB rocket connector to dispenser.

13. Repeat steps 1 through 12 for each weapon to be loaded.

14. Install cartridges in breech chamber of each loaded ejector rack unit. Tighten breech caps 444 inch-pounds.

15. Place WEAPON LOADED sign in cockpit.

9-12. POSTLOADING, QUALITY ASSURANCE.

9-13. Postloading checks are accomplished immediately after weapons loading to ensure weapons are loaded properly/safely prior to launch.

1. Ensure armament switches are in OFF or SAFE position (table 5-1).
2. Ensure WEAPON LOADED sign is in cockpit.
3. Ensure patching switches is set to R.
4. Ensure store indicator is set to B(r).
5. Ensure pylon ejector rack unit safety pins are installed.
6. Sway braces adjusted; jam nuts are secured against sway brace.
7. Cartridges installed in each loaded ejector rack unit and breech caps tight and 0.037 inch throttles (orifice) are installed.
8. Inspect SUU-40/44 for the following:
  - a. Ensure detent safety pin is installed.
  - b. Ensure SNEB rocket connector is properly connected to dispenser.
  - c. Ensure shear latches are closed; shear pins installed from top of latches, ends spread.
  - d. Cartridge and flare data marked on dispenser exterior.
  - e. Ensure nose fairing is installed.
9. Repeat applicable steps 5 through 8 for each loaded station.
10. Report status to proper authority.



9-14. PRIOR TO LAUNCH.

9-15. Prior to launch procedures consist of removal of safety devices and ensuring integrity of weapon system.

9-16. ARMING AREA. (BEFORE ENGINE TURNUP)

1. Remove WEAPON LOADED sign from cockpit.
2. Remove pylon ejector rack unit safety pins.
3. (SUU-40 or SUU-44). Remove detent safety pin.

9-17. AFTER LANDING OR GROUND ABORT.

9-18. After landing or ground abort procedures pertain to an aircraft that has returned from a mission with weapons that have not been expended or an aircraft which has ground aborted with weapons aboard.

9-19. SAFING (DEARMING AREA BEFORE ENGINE SHUTDOWN).

NOTE

There are no procedures performed prior to engine shutdown.

9-20. SAFING (DEARMING OR REARMING AREA IMMEDIATELY AFTER ENGINE SHUTDOWN).

WARNING

If any component is missing, loose, or damaged, notify proper authority.

1. External power not applied and aircraft grounded.

WARNING

When cartridges are installed in dispenser, remain clear of aft end.

2. Install ejector rack unit safety pins in all loaded stations.

3. Check that all armament switches are in OFF or SAFE position (table 5-1).

4. (SUU-40/44). Install detent safety pin.

9-21. TURNAROUND. Turnaround procedures apply only to aircraft not requiring reconfiguration.

1. Ensure safing procedures have been completed.
2. Aircraft positioned in a designated area and grounded.
3. Check that firefighting equipment is available.

NOTE

Release and control system checks should be performed if operational conditions permit.

4. For stations to be loaded, perform the following:

- a. Perform aircraft preparation/inspection (refer to paragraph 9-5).
- b. Perform weapon inspection for weapon to be loaded (refer to paragraph 9-7).
- c. Load weapon according to weapon loading procedures (refer to paragraph 9-9).

5. Perform postloading quality assurance check. (Refer to paragraph 9-12.)

6. Perform prior-to-launch procedures. (Refer to paragraph 9-14.)

9-22. WEAPON UNLOADING.

9-23. PREPARATION. Prepare aircraft as follows:

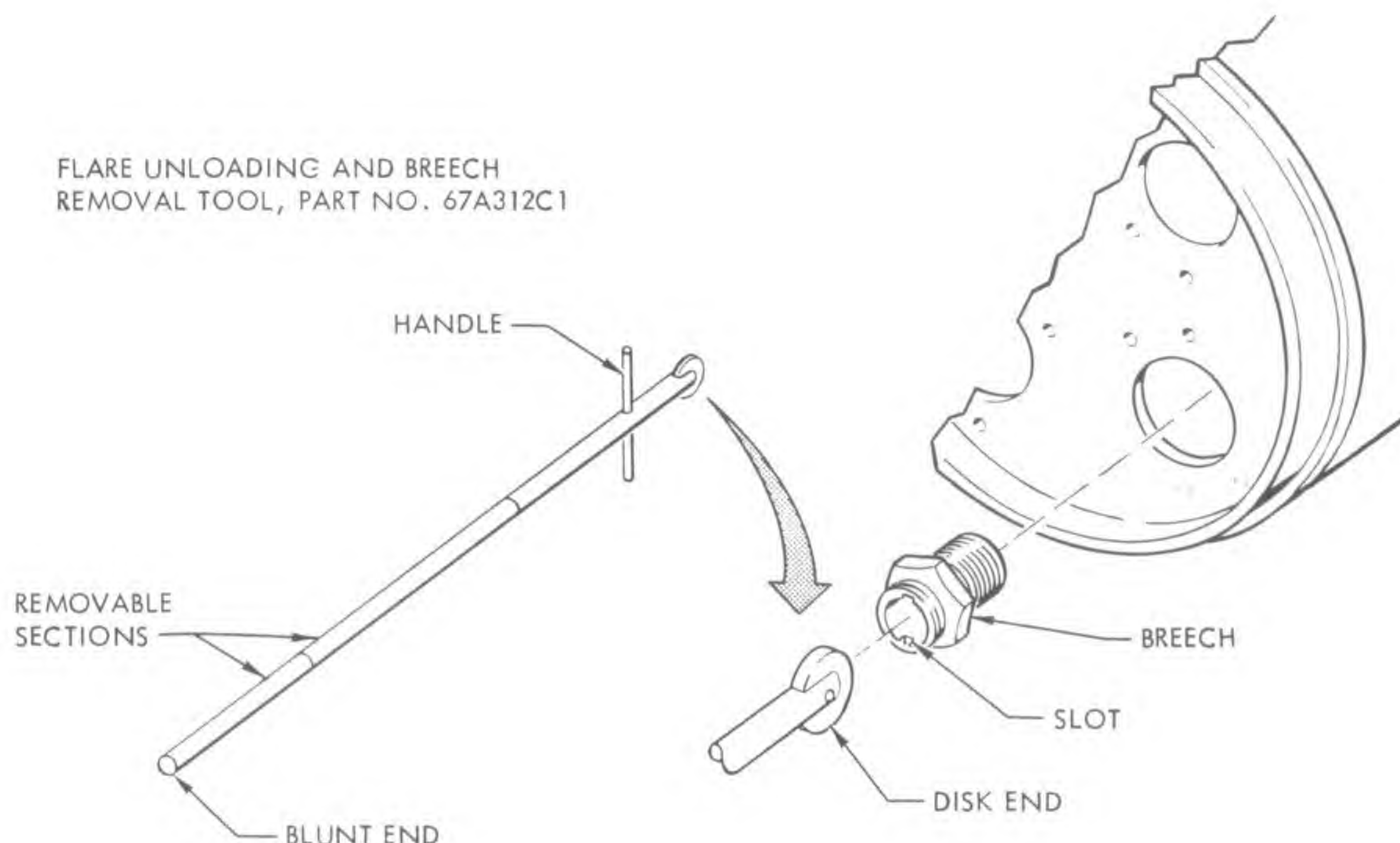
1. Aircraft positioned, firefighting equipment available.
2. External power not applied and aircraft grounded.
3. Check that all armament switches are in OFF or SAFE position (table 5-1).
4. (Loaded stations). Safety pin installed.
5. Remove pylon cartridges.
6. SUU-40 or SUU-44 perform the following:

WARNING

When cartridges are installed in dispenser, remain clear of aft end.

- a. Ensure detent safety pin is installed.
- b. Disconnect SNEB rocket connector from dispenser.
- c. Disconnect electrical connectors from breech caps.
- d. Remove breech caps and remove cartridges from dispenser (figure 9-3).
- e. Erase cartridge installation data from exterior of dispenser.





AV8A-75-(140)

Figure 9-3. SUU-40/A and SUU-44/A Breech Removal

**CAUTION**

Ensure unloading and handling equipment is configured to safely accept weapon being unloaded.

7. Unloading equipment positioned/rigged for unloading.

8. Sway braces retracted.

9-24. UNLOADING. Unload weapon as follows:

1. Support weapon with handling equipment.

2. Raise weapon until lugs float in ejector rack unit hooks.

3. Remove pylon ejector rack unit safety pin.

4. Open ejector rack unit hooks and lower weapon. Remove weapon from area.

5. Repeat steps 1 through 4 for each weapon to be unloaded.



## SECTION X

### AIR INTERCEPT MISSILES, AIM-9

#### 10-1. INTRODUCTION.

10-2. This section contains necessary AV-8A loading/unloading information for the weapons listed below. Procedures contain information necessary to assure safety and reliability, provided the assumptions in paragraph 1-22 have been complied with.

#### WARNING

This manual does not authorize station loading for flight. For specific authorization, refer to Tactical Manual.

AIR INTERCEPT MISSILE, AIM-9B  
AIR INTERCEPT MISSILE, AIM-9D/G/H

#### 10-3. GROUND SUPPORT EQUIPMENT (GSE).

10-4. For ground support equipment refer to tables 2-4 and 2-5. Test equipment and special tools needed to perform loading operations are as follows:

##### 1. Test Equipment.

###### a. AIM-9B

- (1) Flashlight with clear, flat glass lens.

###### b. AIM-9D/G/H

- (1) (Primary) Tester, Guided Missile Infrared Source TTU-304/E (P/N 30003-2605087).
- (2) (Secondary) Flashlight with clear, flat glass lens.

##### 2. Special Tools.

a. Launcher adapter connector (N-T40782) (P/N 1517359-1) AIM-9B.

b. LAU-7 Detent Wrench/Safety Pin.

c. Nitrogen Receiver Installation/Removal Wrench.

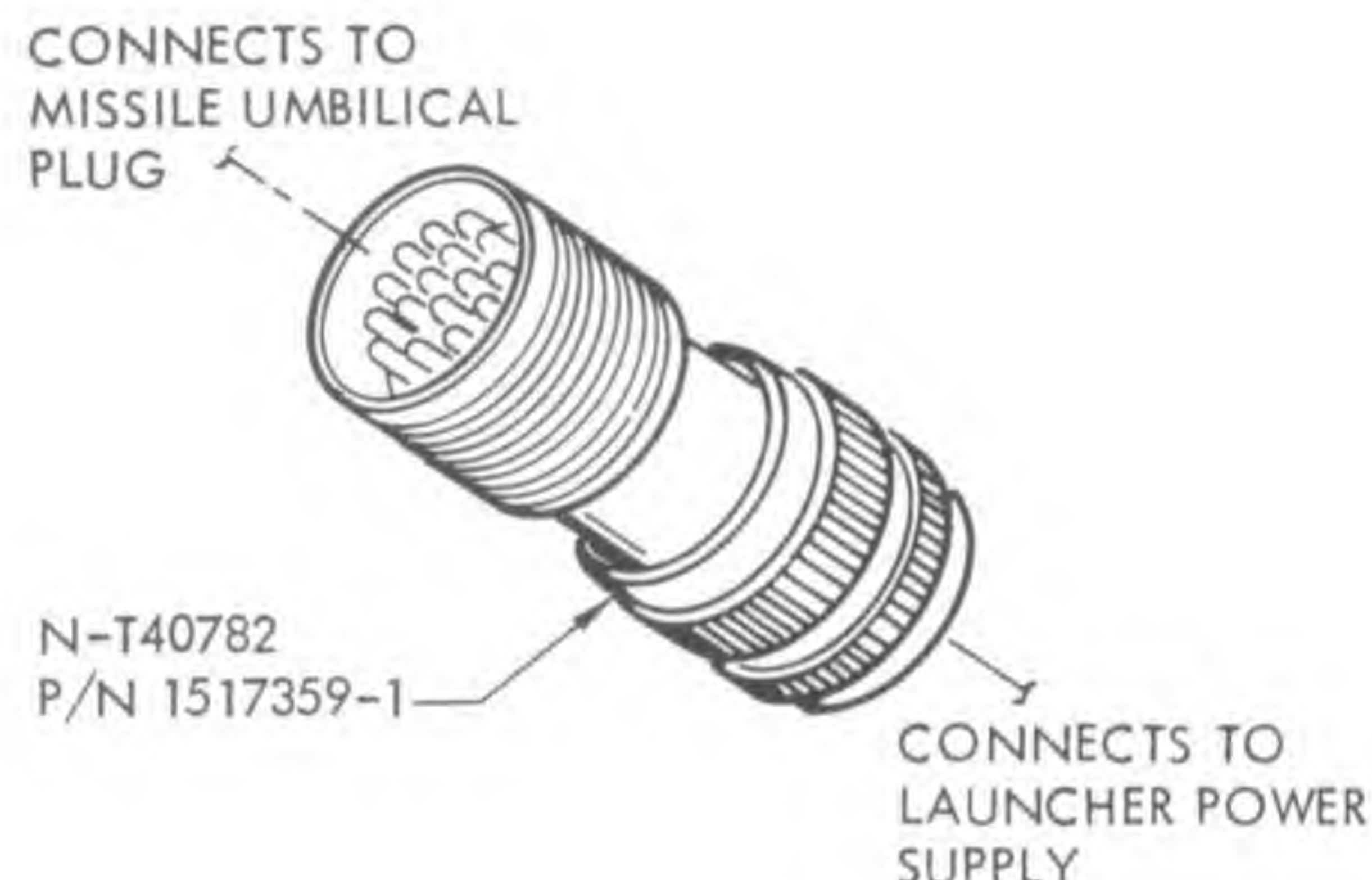
d. Ground Safety Pin/Manual Release Tool.

#### 10-5. AIRCRAFT PREPARATION/INSPECTION.

10-6. The following procedures will ensure aircraft is in a safe condition prior to performing loading operation. Perform procedures in sequence indicated; certain steps will not apply depending upon aircraft configuration.

1. Check that aircraft is configured to receive weapons in accordance with section III.

2. Check that required release and control system checks have been completed in accordance with section IV.



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Figure 10-1. AIM-9B Launcher Adapter Connector

3. Check that aircraft common procedures have been complied with in accordance with section V.

4. Check pylon for the following (Stations 1 and 5).

a. Breech caps and cartridges removed.

b. Ensure throttles (orifice) are installed in the pylon ejector rack unit. Tighten to 84 inch-pounds.

c. Ensure breech housing is clean and very lightly oiled.

d. Ensure ejector rack unit hooks are locked and ground safety pin/manual release tool installed in safety pin insert.

5. Check ADU-299A/A launcher adapter/LAU-7 launcher for the following:

a. Check that launchers with adapters are properly installed on outboard pylons.

b. Check that launcher safety pin and detent hold down pin are installed.

c. Depress button on bottom of forward fairing and slide fairing forward. If AIM-9B is to be loaded, install launcher adapter connector (1517359-1) to power supply on each launcher to be loaded (figure 10-1).

d. Check for 3/8-inch black stripe installed, aligned with center of front striker point.

e. If AIM-9D/G/H is to be loaded, open aft fairing doors by pulling latch aft and down, sliding halves aft and releasing (figure 10-2). Ensure aft snubbers operate properly.



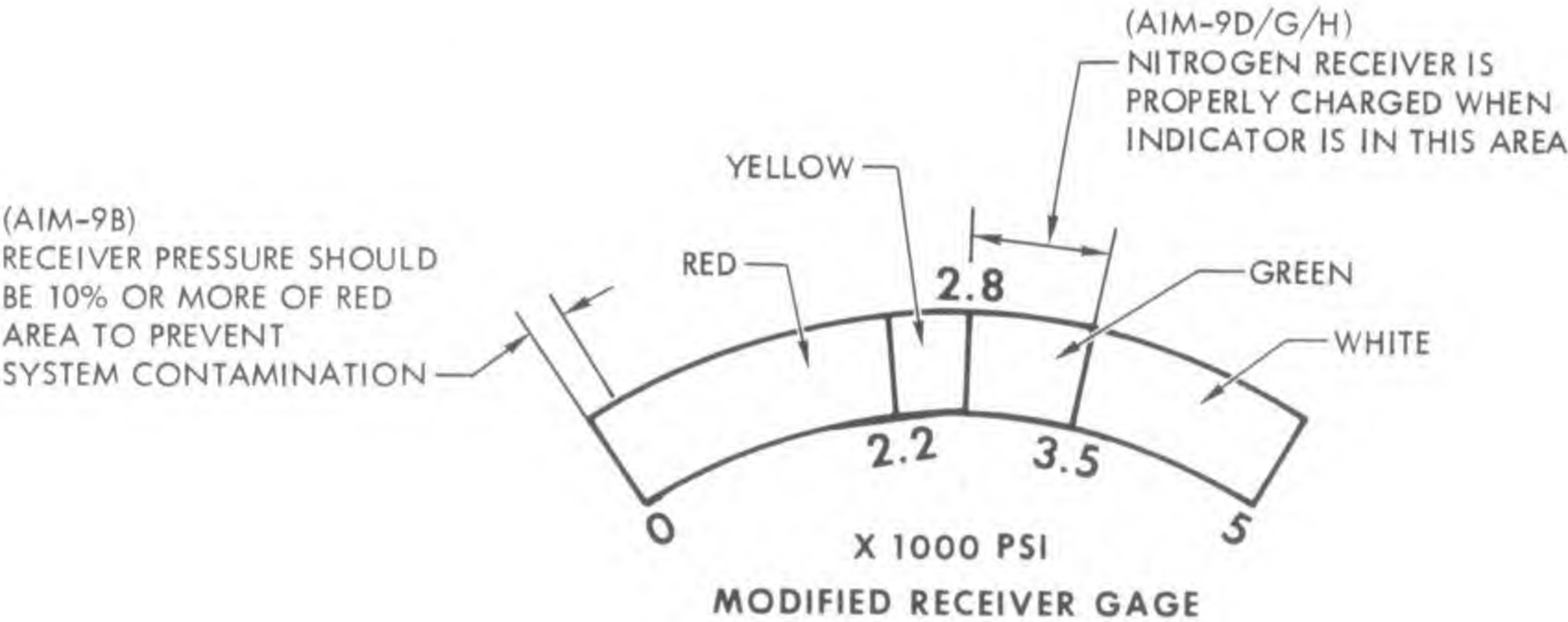
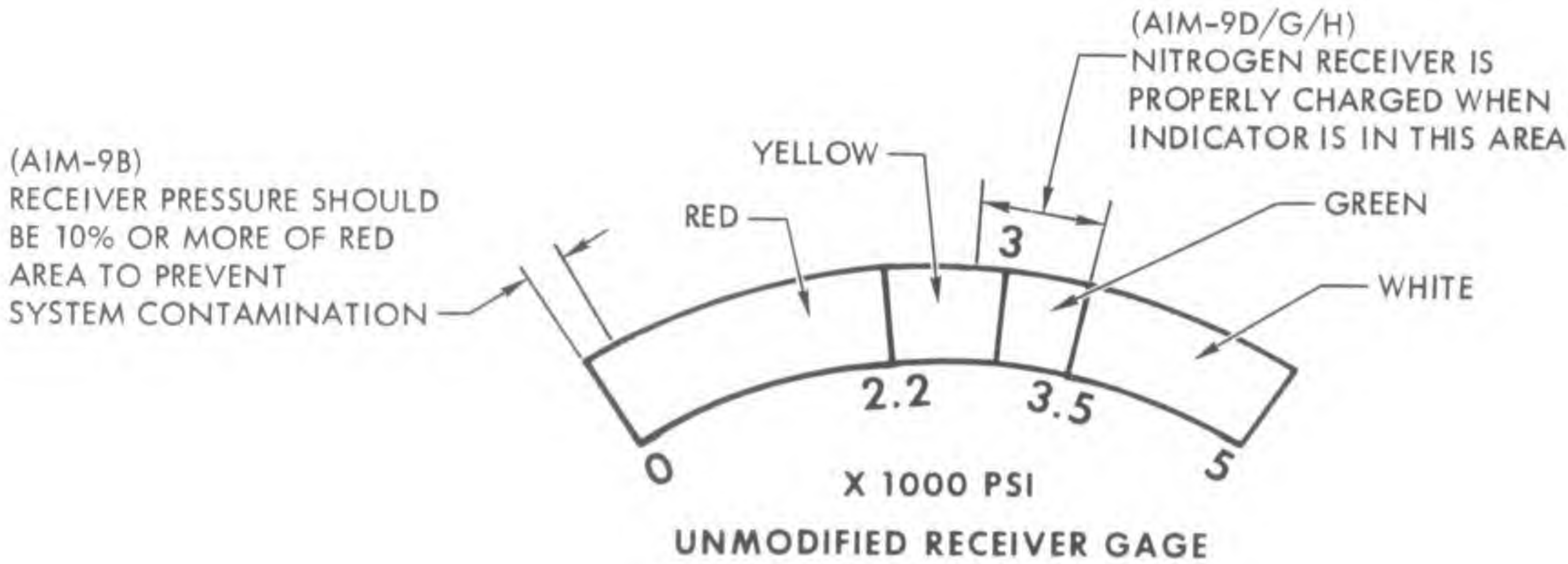
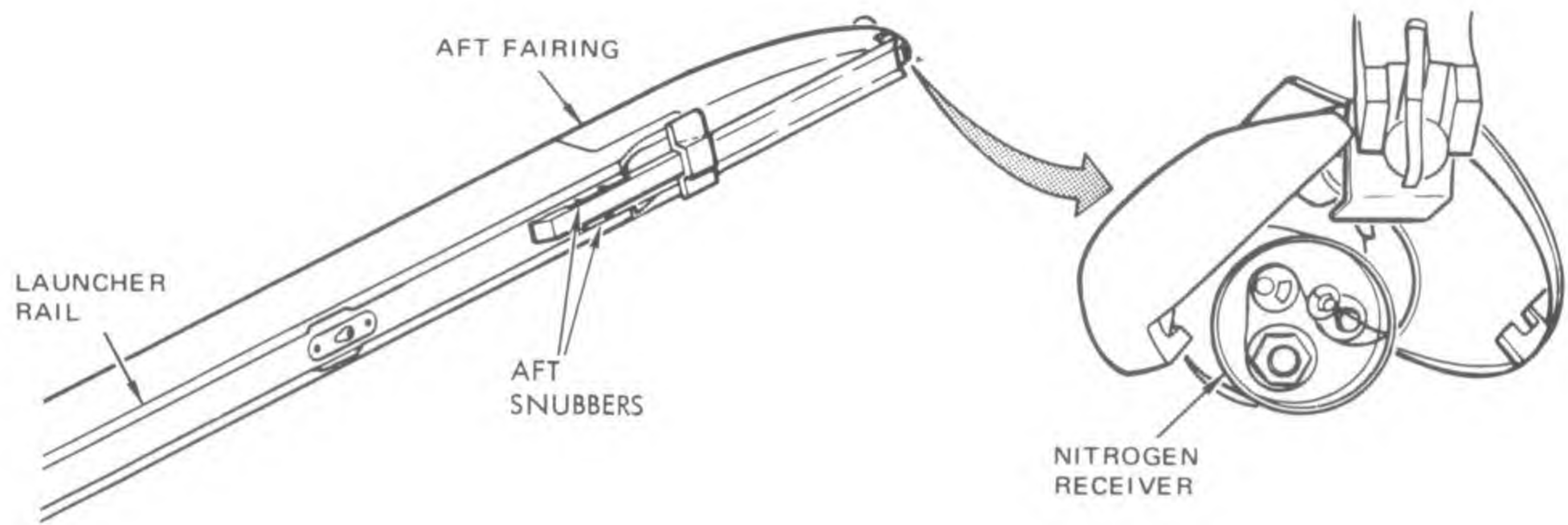
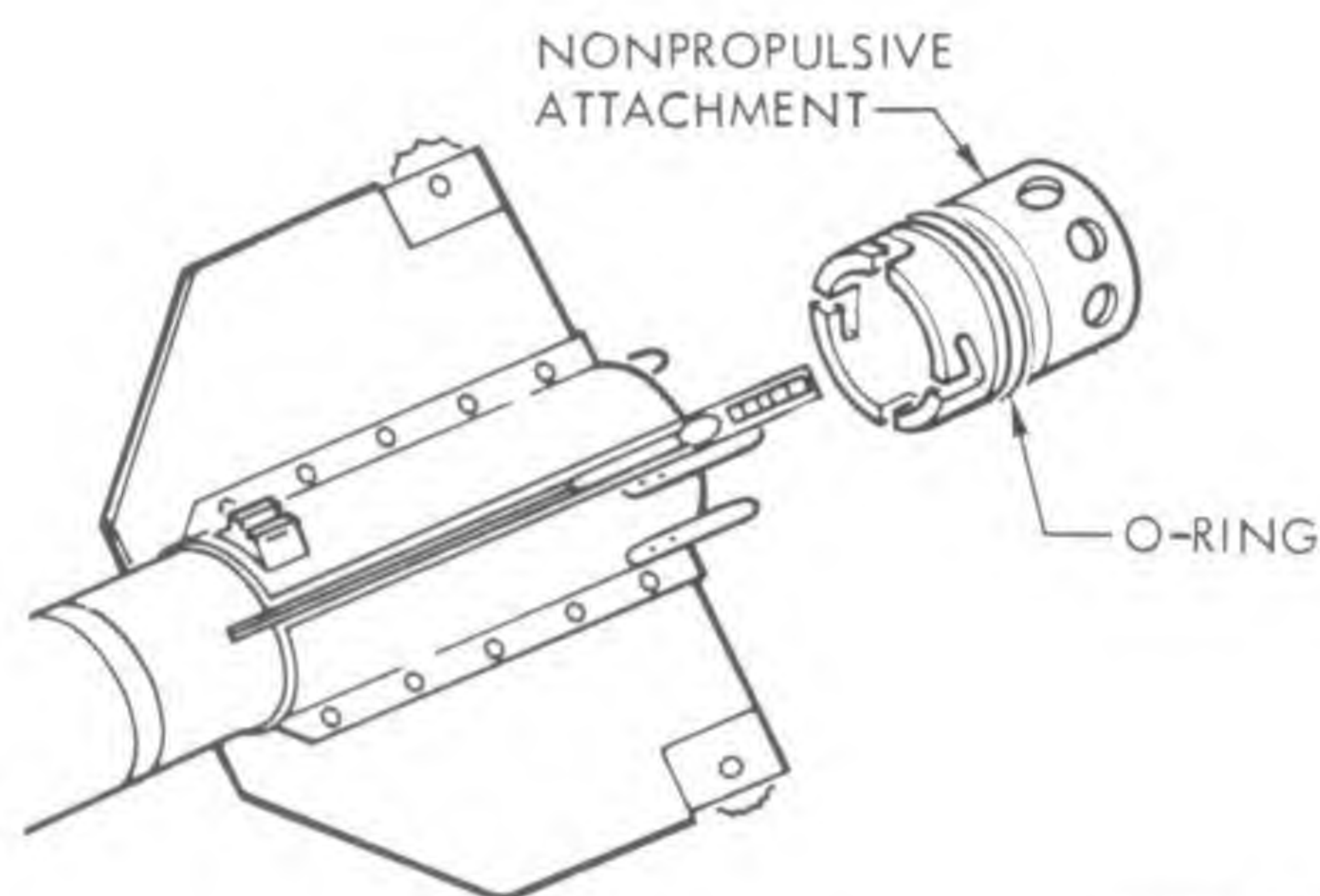


Figure 10-2. Nitrogen Pressure Gage





AV8A-75-(141)

Figure 10-3. Missile Nonpropulsion Attachment (AIM-9B)

**NOTE**

Nitrogen pressure should be 10% or more of red area to prevent contamination.

f. (AIM-9D/G/H). Nitrogen receiver is properly charged when pressure indicates between 2800 and 3000 psi (figure 10-2).

g. Replace nitrogen receiver if pressure is below required minimum.

h. If pressure is acceptable, close aft fairing.

i. Ensure launcher snubbers operate properly and then retract.

j. Ensure fin retainer springs are not damaged.

k. Repeat applicable steps a through j for each launcher.

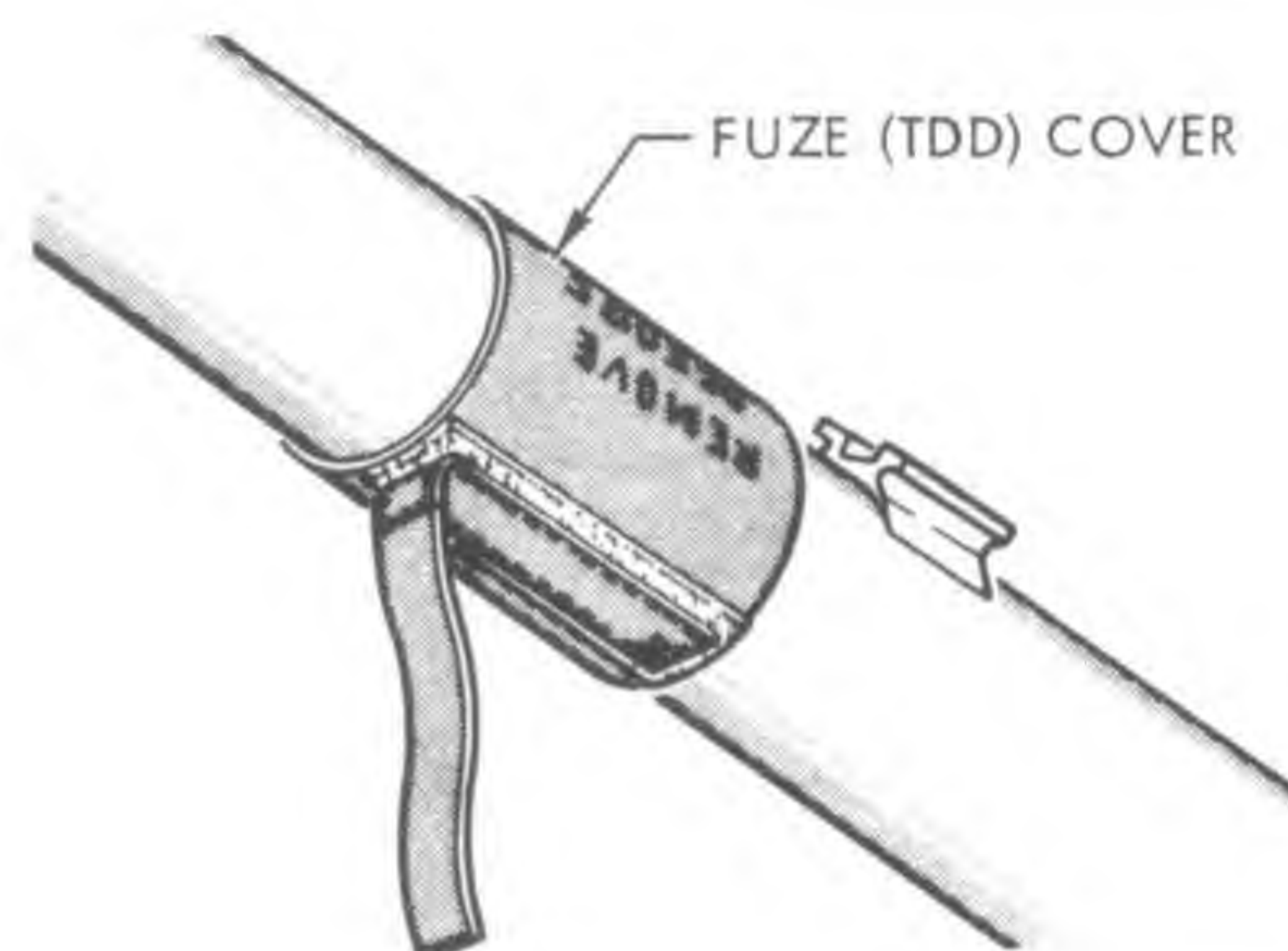
**10-7. WEAPON INSPECTION.**

10-8. If inspection of a missile reveals that it is not acceptable for loading and cannot be made acceptable in a reasonable period of time, the missile shall be returned to the assembly area. Notify proper authority.

**WARNING**

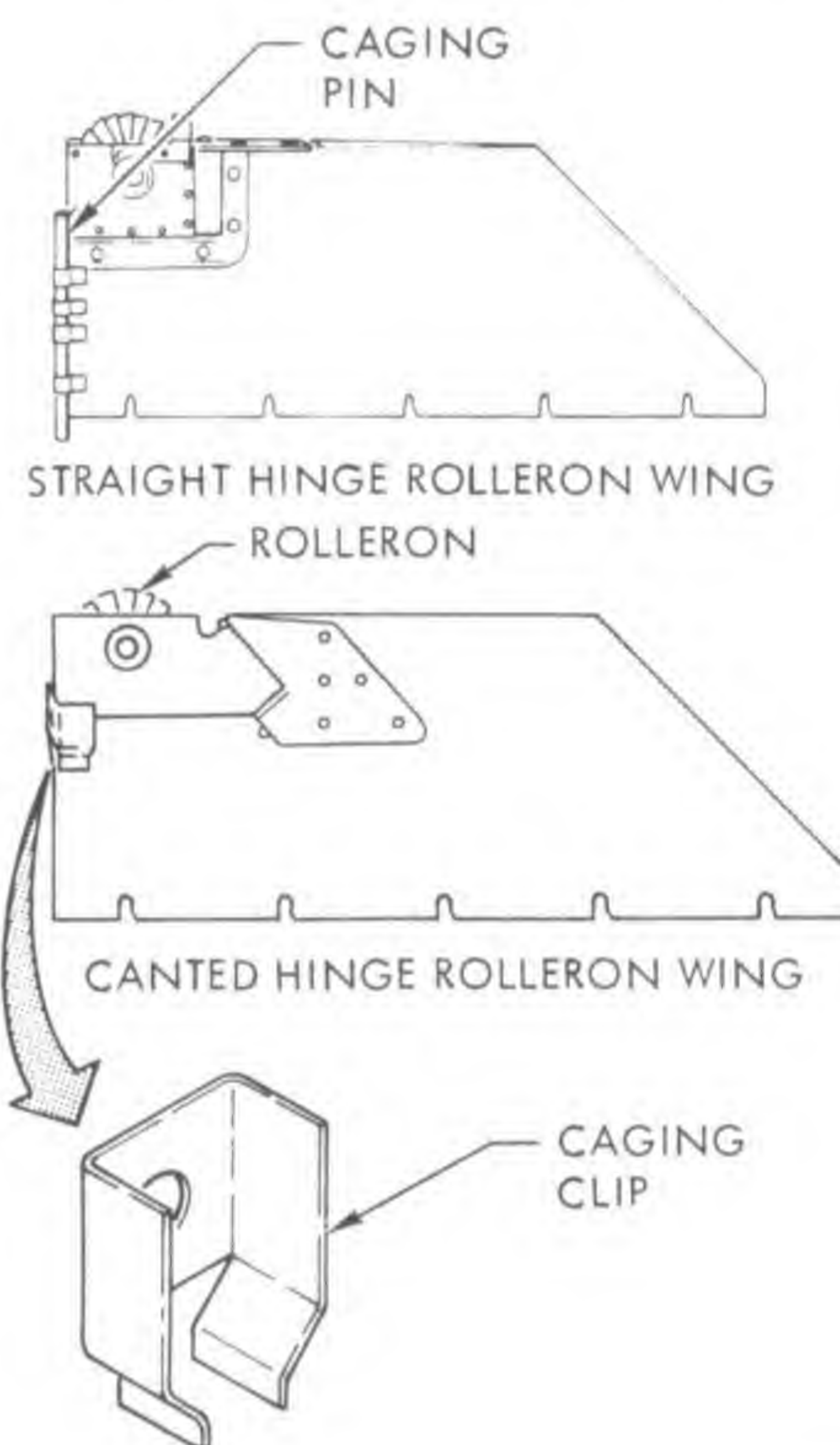
A damaged AIM-9B Guidance and Control Group (GCG) may be leaking a mercury-thallium mixture. Avoid bodily or clothing contact. The mixture is a highly toxic, silver-colored fluid. If mixture contaminates skin, wash thoroughly with soap and water. Contaminated clothing should be removed.

1. (AIM-9B). GCG not leaking.
2. (AIM-9B). Ensure nonpropulsion attachment is installed and nozzle weather seal not damaged (figure 10-3).
3. Inspect motor, fins, wings, rolleron caging pins, and clips for damage, security, and installation.



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Figure 10-4. Missile TDD/Fuze Cover



AV8A-75-(143)

Figure 10-5. Missile Rolleron, Wings and Caging Clip

4. Ensure influence fuze or target detecting device cover is installed as required (figure 10-4).

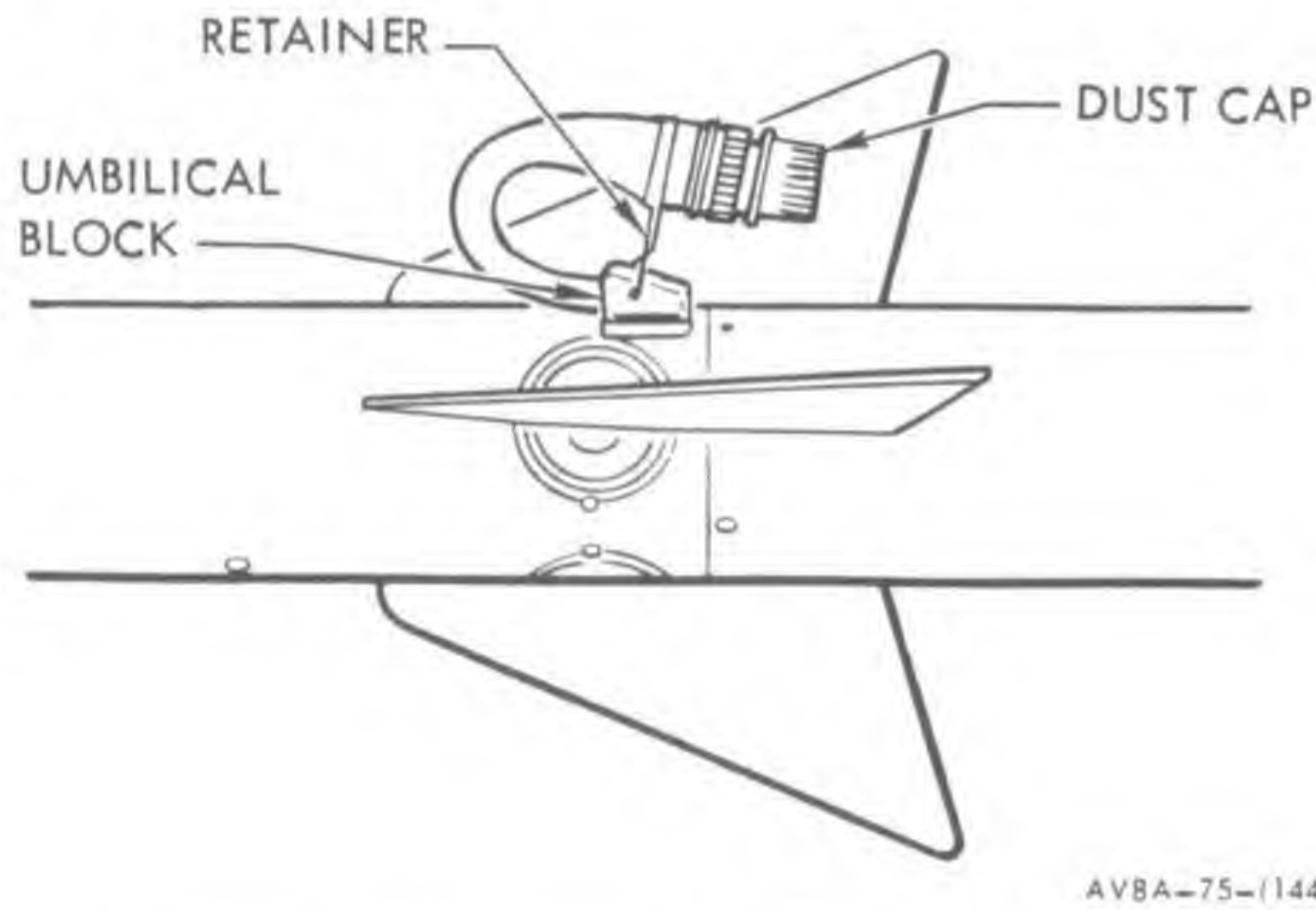
5. Inspect wings and rollerons for nicks, bent wings, missing dust cover or O-ring, missing epoxy seal or damaged rolleron assembly. Refer to applicable missile technical manual for rejection criteria.

**CAUTION**

Both canted hinge and straight hinge rolleron wings must not be mounted on the same missile. Erratic flight will result.

6. (AIM-9B). Check that missile wings are the same configuration (figure 10-5).





AV8A-75-(144)

Figure 10-6. Missile Umbilical Block

7. Inspect missile sections for proper mating and security of joints. Gaps between coupling ring edges shall not exceed 0.020 inch. If coupling ring screws are loose, return missile to assembly area. Ensure that no movement exists between missile sections.

CAUTION

The missile dome protector must be installed on the AIM-9D/G/H at all times except when aircraft power is applied or missile dome is being inspected. Do not use AIM-9B dome protector on AIM-9D/G/H missile or do not use AIM-9D/G/H dome protector on AIM-9B.

8. Check that proper dome protector is installed.

NOTE

Rolleron caging pins on straight hinge rolleron wings must be positioned clear of motor nozzle before attaching nonpropulsion attachment. Rolleron caging pins must be moved to detent position (in nozzle exhaust area) after nonpropulsion attachment is removed.

9. Check that umbilical block is properly mounted and secure.

10. Inspect umbilical for damage, shorting plug, or dust cover installed and retaining clip or retainer attached to umbilical block pins (figure 10-6).

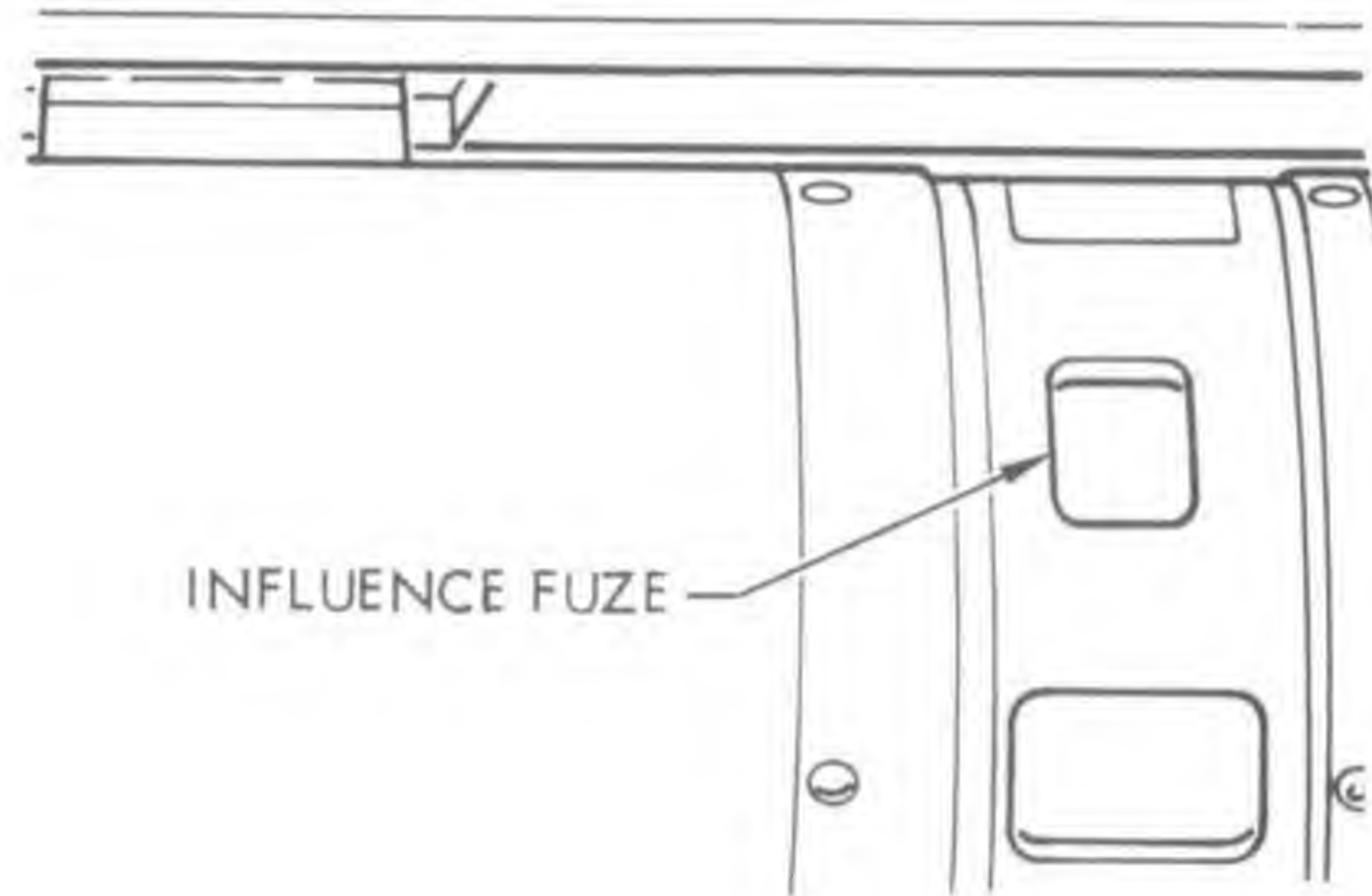
11. Remove umbilical shorting plug or dust cover. Inspect umbilical plug for damage and cleanliness. Reinstall shorting plug or dust cover.

12. (AIM-9D/G/H). Ensure nitrogen pin is clean and tight.

13. Check motor hangers for damage, security, excessive wear, and alignment.

WARNING

Chemical resistant gloves must be worn when handling a damaged Guidance and Control Group. No danger is involved if the group is



AV8A-75-(145)

Figure 10-7. Influence Fuze

damaged but no spillage or leaking of mercury thallium is evident.

CAUTION

Missiles with broken or cracked domes shall not be loaded. Damaged dome will affect missile performance.

14. Remove missile dome protector.

15. Check that dome is not broken, cracked, scratched, or pitted. Wipe clean of any fingerprints, oil, or stains.

16. (AIM-9B). Inspect IR dome for presence of moisture. If moisture inside dome is evident, reject missile.

CAUTION

(AIM-9D/G/H). Dome protector must be replaced immediately after dome inspection.

17. Reinstall dome protector.

18. As applicable, remove influence fuze cover or target detecting device cover and inspect window for smudges, scratches, moisture, and corrosion (figure 10-7). Reinstall cover.

19. Inspect contact buttons are not damaged.

20. Remove rolleron covers.

21. Spin rollerons to check operation. Rough, jerky, or noisy wheel motion is cause for missile rejection.

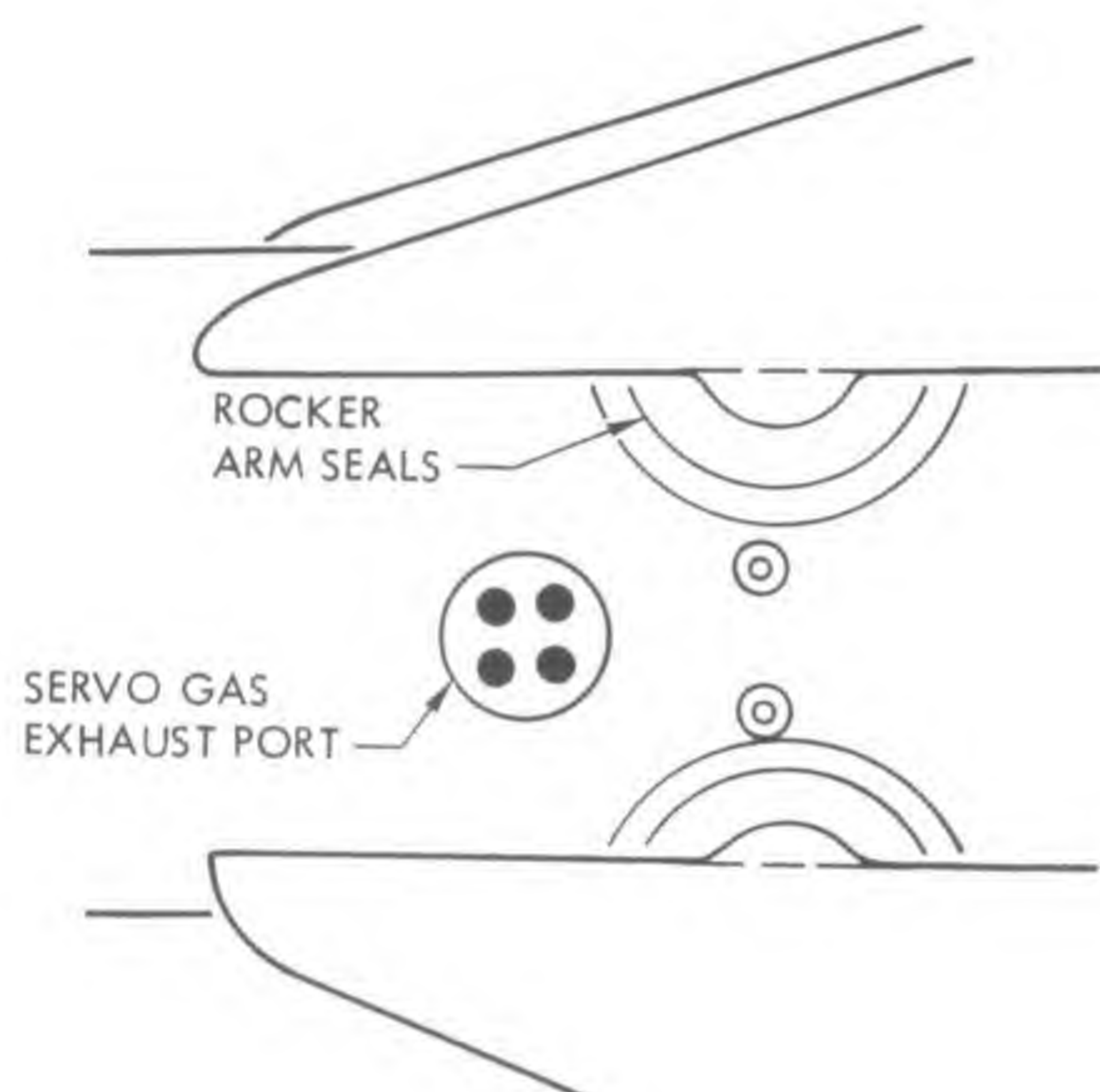
22. On AIM-9B with straight hinge rolleron wings, check rolleron caging pins for damage (figure 10-5).

CAUTION

Canted hinge wings must have caging clips installed.

23. On AIM-9B with canted rolleron wings, check that rolleron caging clips are not bent or damaged and are installed (figure 10-5).





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Figure 10-8. Missile Servo Gas Exhaust Port and Rocker Arm Seals

24. (AIM-9D/G/H). Check rolleron cagers for proper operation.

25. Reinstall cover.

26. Inspect fins for damage and freedom of movement. Inspect rocker arm seals for tears and security.

27. Inspect area around servo gas exhaust ports/vent and rocker arm seals for soot deposits (figure 10-8).

28. Repeat applicable steps 1 through 27 for each missile.

#### 10-9. WEAPON LOADING.

10-10. PREPARATION. Check for the following:

1. Aircraft preparation/inspection (paragraph 10-5) and weapon inspection (paragraph 10-7) is completed.

#### WARNING

Electrical power shall be applied to the aircraft only during missile tone check.

2. Ensure battery switches are OFF.

3. External power removed from aircraft.

4. Aircraft grounded.

5. Check armament switches are in OFF or SAFE position (table 5-1).

6. Detach umbilical retaining clip or retainer.

7. (AIM-9B). Remove nonpropulsion attachment.

8. (LAU-7). Safety pins installed from outboard side.

9. (LAU-7/A-2 or -3). Remove detent holddown pin (figure 10-9).

10. Rotate aft fairing latch to unlocked position and check that rear snubbers are retracted; close fairing.

11. Weapon/loading equipment positioned/rigged for loading.

10-11. **LOADING.** Load as follows:

1. Determine station and type of missile to be loaded.

#### WARNING

Do not stand directly in front of or behind missile during loading operation.

#### CAUTION

Do not use rollerons, fins, or dome area of guidance and control section for lifting missile.

2. Insert missile hangers into launcher rail loading slots.

3. Retract detent by rotating hexagon detent wrench until snubbers are actuated (only forward snubbers will move). Slide missile forward until front edge of hanger is within the alignment mark on LAU-7 launcher (figure 10-9).

4. Lower detent by releasing detent wrench. The detent aft fork will come to rest on top of hanger.

#### CAUTION

Do not use excessive force when sliding missile forward. The front of the motor hanger may cause the front fork of the launcher detent to raise and come to rest on top of the motor hanger.

5. Slide missile forward until hanger contacts forward detent fork. Continue pushing forward until detent aft fork snaps into place. Hanger will then be correctly positioned between detent forks.

#### NOTE

Space between the vertical edges of motor forward hanger and launcher detent forks is permissible. Do not attempt to eliminate space by repositioning missile or inadvertent unlatching of missile may occur.

6. Visually inspect detent to ensure forward and aft forks are securely restraining missile in both directions.



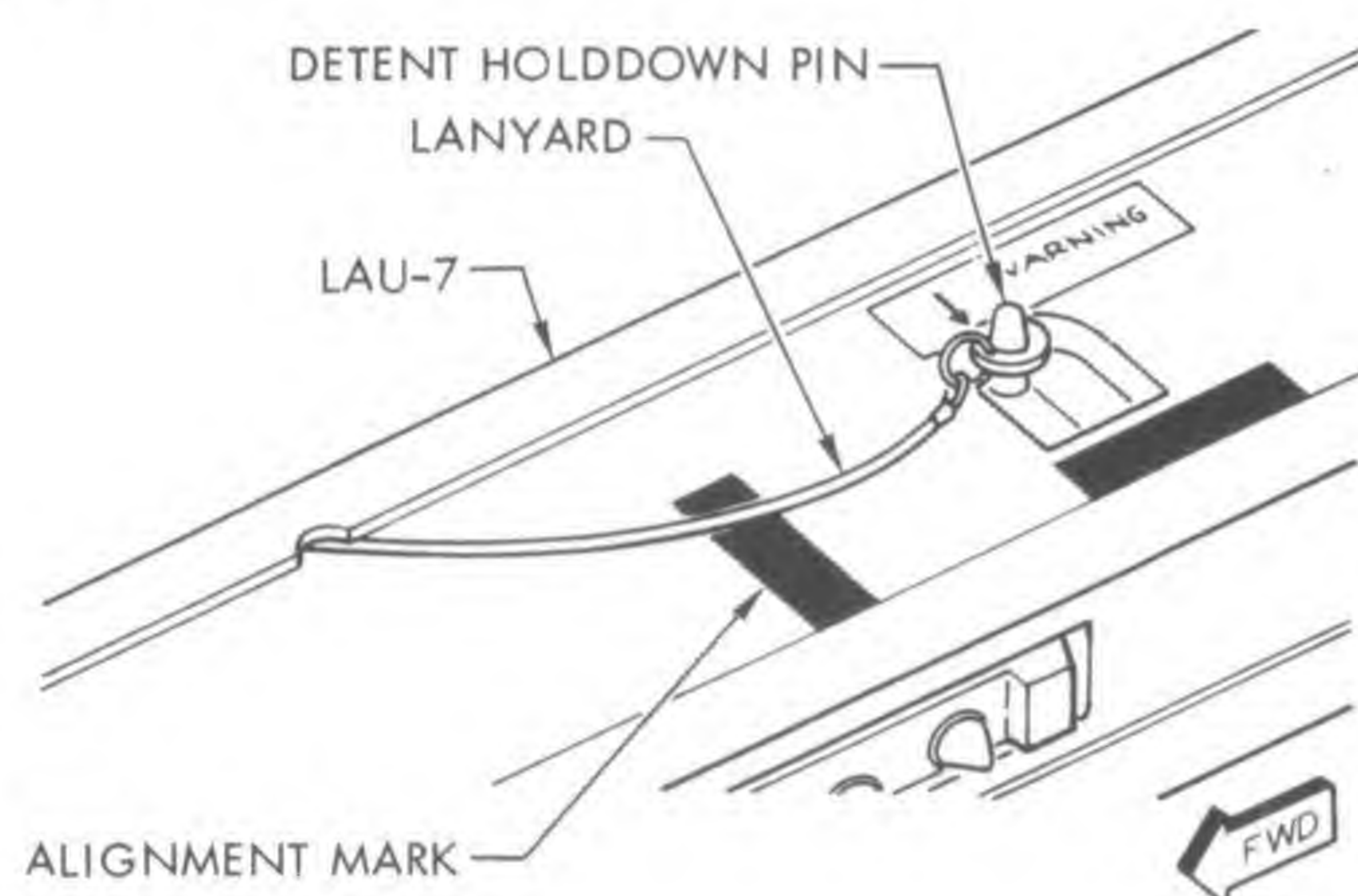


Figure 10-9. AIM-9 Missile Loading

### CAUTION

Do not use excessive force to rock missile. Snubber loosening or damage to wings may occur.

7. Gently rock missile around longitudinal axis to ensure proper snubber engagement.

8. Install detent holddown pin (figure 10-9).

9. If snubber action is improper, remove missile and spray MIL-C-23411 (WD-40) lubricant into forward launcher slots (so it will penetrate the internal detent area) and aft snubber mechanism. Wipe all lubricant from snubber surfaces that contact motor hangers. Lubricant on motor contact surfaces interferes with proper snubbing.

### NOTE

A release and control system check must be performed if launcher is replaced.

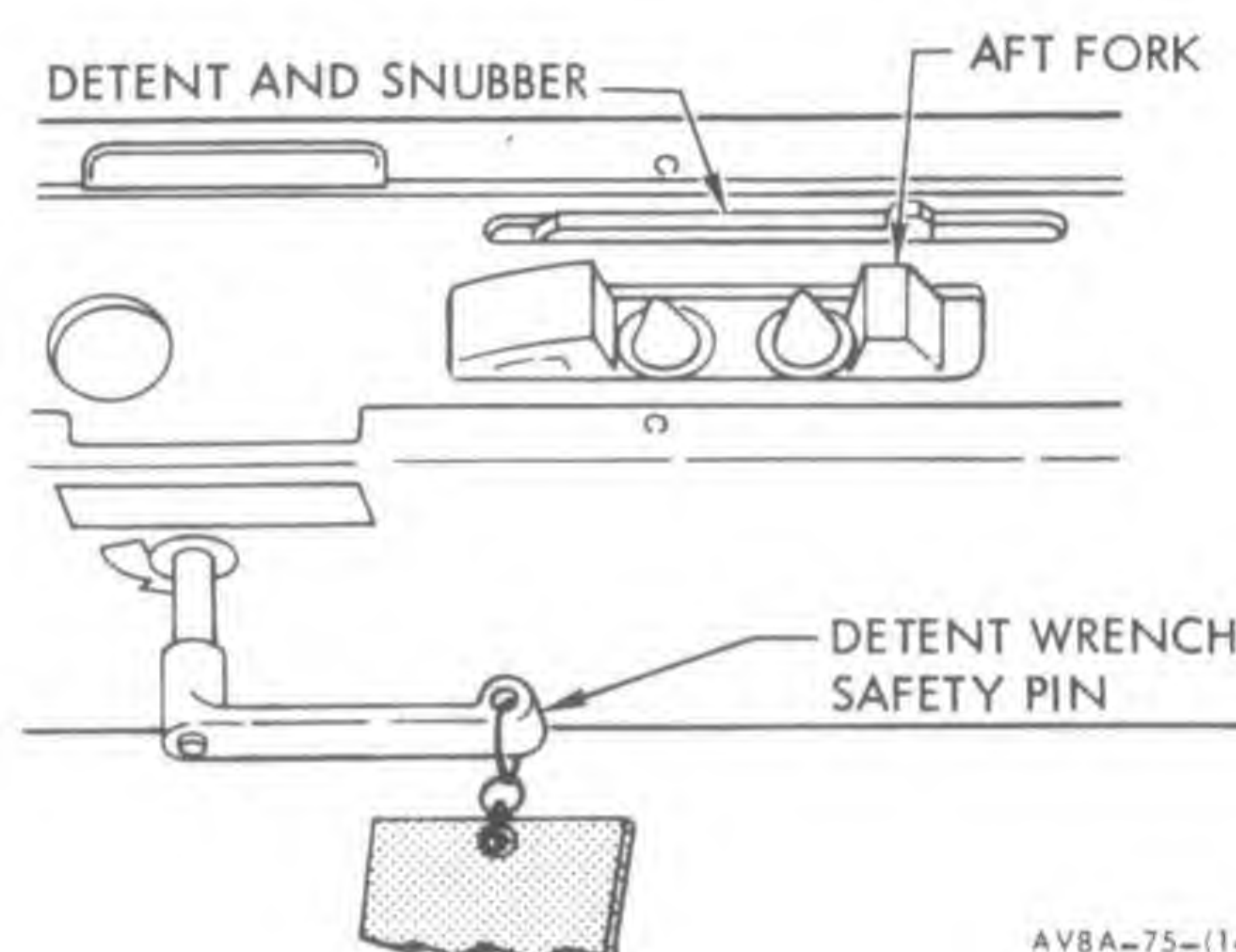
10. Repeat steps 2 through 9 if snubbers still fail to properly engage motor hangers; remove missile from launcher and replace launcher.

11. Attach launcher umbilical block hooks to missile by pushing down until hooks snap into place over umbilical block pins (figure 10-10).

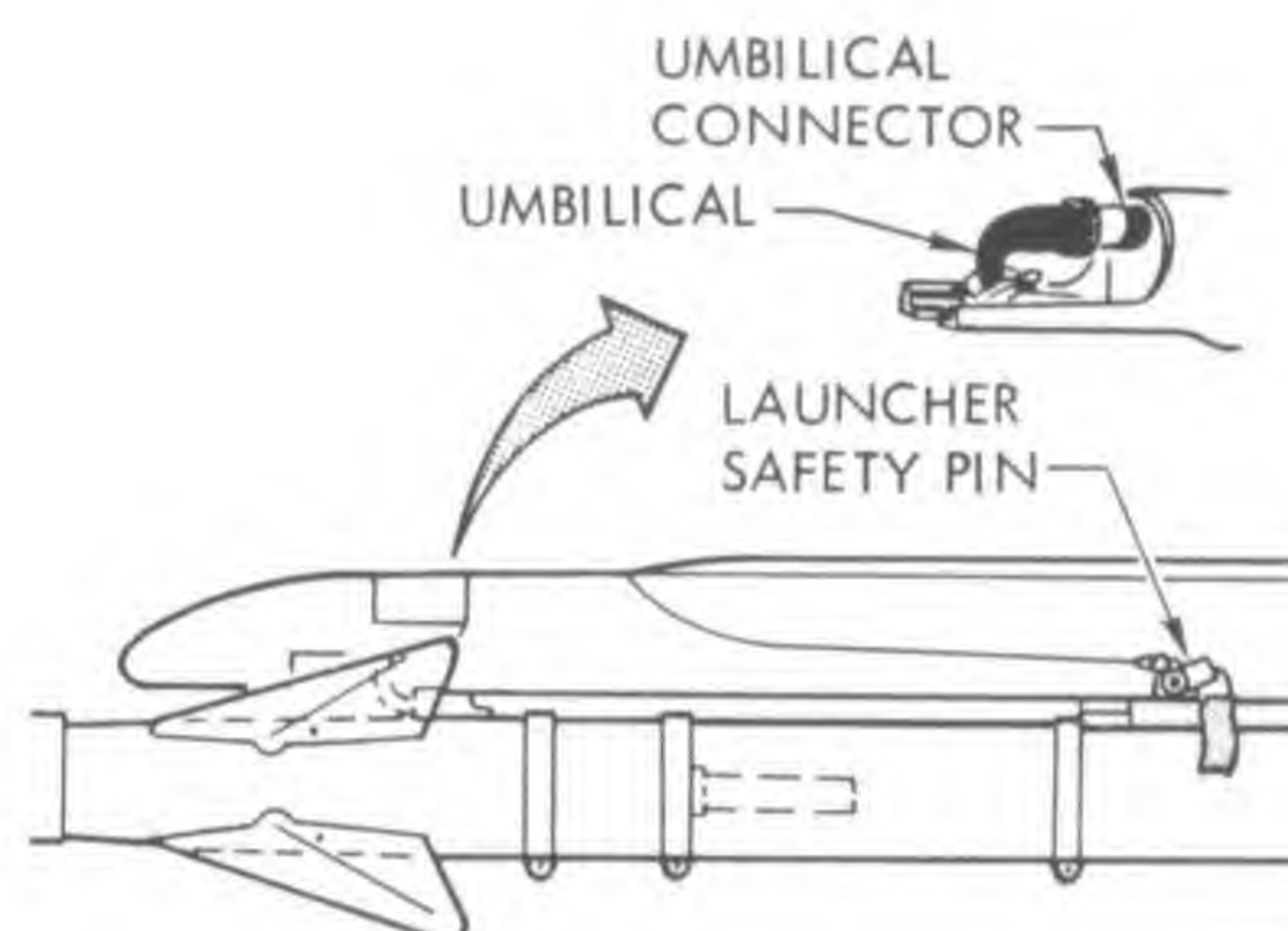
### NOTE

When an AIM-9B missile is loaded on a LAU-7 launcher, an N-T40782 adapter connector, 1517359-1, must be installed between missile umbilical and umbilical connector.

Umbilical plugs should be hand-tightened. If necessary to use pliers, electrical connector pliers are recommended. If ordinary pliers must be used, pad jaws with rubber tape or other suitable material to prevent damage to plugs.



AV8A-75-(147)



AV8A-75-(148)

Figure 10-10. Missile Umbilical Connector

12. Remove shorting plug or dust cap from umbilical connector and connect umbilical to adapter connector (figure 10-10).

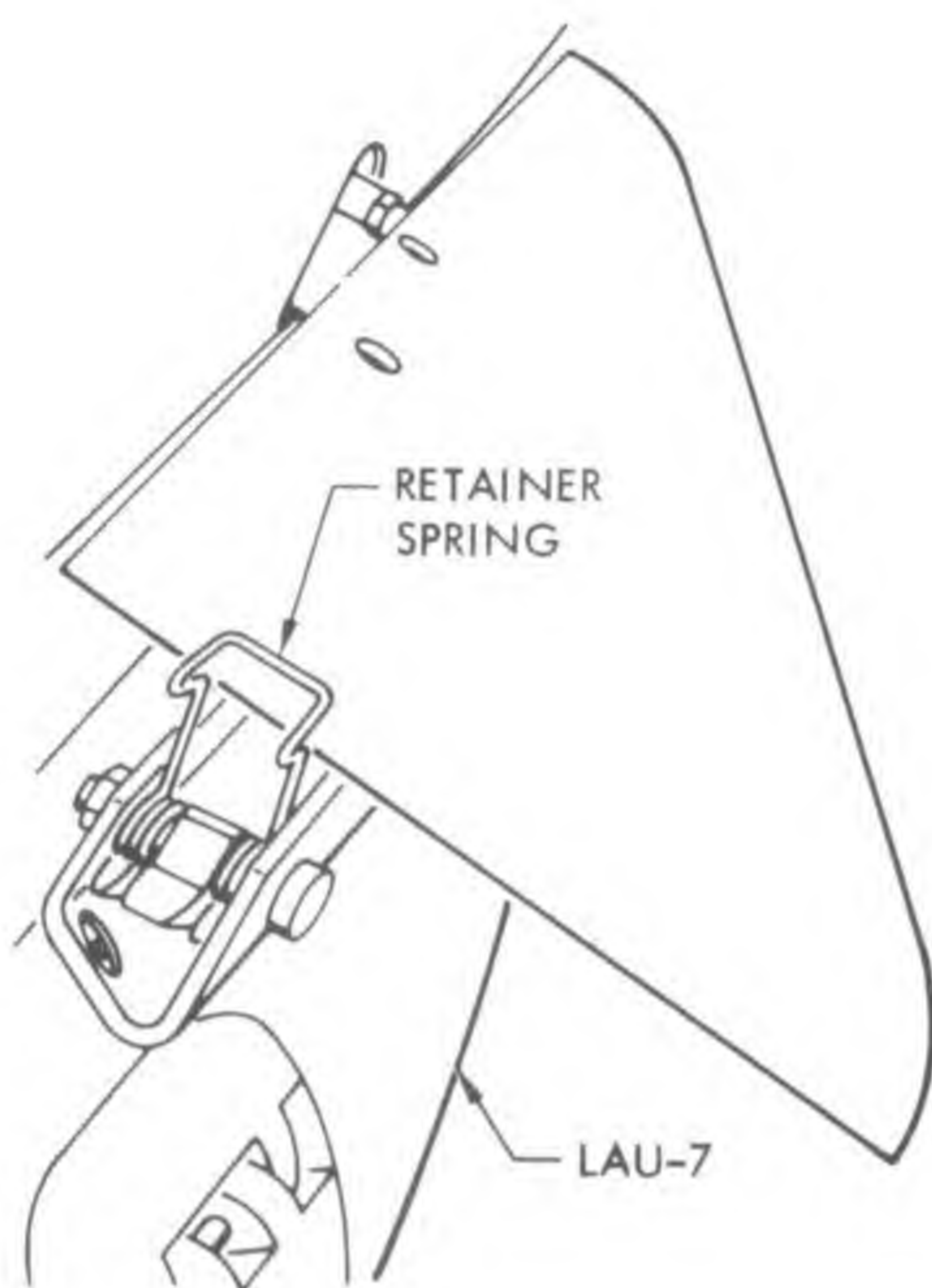
13. (AIM-9B). Straight hinge rollerons must have caging pins positioned in nozzle exhaust area. Position caging pins to detent position.

14. (AIM-9D/G). Rotate aft end of fins adjacent to launcher, away from launcher. Rotate fin retainer spring to 90° position, and align aft end of fin with hook portion of fin retainer spring. Slowly release retainer spring as it engages fin (figure 10-11).

15. Check that aft end of fin is securely engaged with hook portion of fin retainer spring.

16. As applicable, repeat steps 1 through 15 for each missile being loaded.





AV8A-75-(149)

Figure 10-11. Fin Retainer Spring Installation

17. (If required). Perform missile tone check as follows:

CAUTION

The dome protector may remain installed after electrical power is applied, provided it is limited to a short period of time.

Aircraft battery switches must be on prior to and with external power applied to aircraft to prevent damage to aircraft electrical system.

- a. Position battery switches to ON.
- b. Connect external power to aircraft.
- c. Position Anti Coll switch located on the cabin port aft console panel to ON.
- d. Press DC Reset button. Check that anti collision lights are flashing.
- e. Select missile station to be tested.

NOTE

Test switch must be held to test position 60 to 120 seconds prior to conducting tone check.

- f. Position Ground Test Switch to test (raised) position and hold.
- g. Rotate Auraltone switch to hi.

h. Remove missile dome protector.

i. (AIM-9B). Move flashlight beam across missile nose. Missile tone is heard in headset.

j. (AIM-9D/G/H). (TTU-304/E). Perform the following:

- (1) Turn tester on.
- (2) Check that bulb is on by looking through peephole on side of head.
- (3) Move head of tester across missile nose about 1 to 2 feet in front of missile. Missile tone is heard in headset.
- (4) If missile tone is not heard, check nitrogen bottle installation. If installed properly and still no tone, reject missile.

k. Replace missile dome cover.

1. Repeat applicable steps f through k for each missile.

18. Remove external power from aircraft.

19. Place Anti Coll switch to OFF.

20. Position battery switches to OFF.

CAUTION

Do not install ejector cartridges in ejector rack unit.

21. Install ejector rack unit breech caps.

22. Place WEAPON LOADED sign in cockpit.

10-12. POSTLOADING, QUALITY ASSURANCE.

10-13. Postloading checks are accomplished immediately after weapons loading to ensure weapons are loaded properly/safely prior to launch.

1. Ensure armament switches are in OFF or SAFE position (table 5-1).
2. Ensure WEAPON LOADED sign is in cockpit.
3. Check outboard pylons as follows:
  - a. Safety pin installed.
  - b. Ejector rack unit breech caps installed.
  - c. Sway braces adjusted; jam nuts tightened.
4. Check each missile/launcher for the following:
  - a. Launcher safety pins are installed.
  - b. Detent holddown pin installed.
  - c. Launcher detent securely engaging missile hanger.



d. Dome protector and, as applicable, influence fuze or TDD fuze cover installed.

e. Umbilical connected to adapter connector or umbilical connector.

f. Umbilical block pins secured in umbilical block hooks.

g. (AIM-9D/G/H). Aft end of upper fins securely engaged with hook portion of retainer spring.

h. (AIM-9B). Nonpropulsion attachment removed, rolleron caging pins are positioned or caging clips installed, as applicable.

i. (AIM-9D/G/H). Rolleron covers removed.

5. Ensure ADU-299A/A electrically connected to aircraft pylon.

6. Ensure launcher electrically connected to ADU-299A/A.

7. Check that aircraft pylon and launcher access fairings and panels are secure.

8. Report status to proper authority.

#### 10-14. PRIOR TO LAUNCH.

10-15. Prior to launch procedures consists of removal of safety devices and ensuring integrity of weapon system.

#### 10-16. REARMING AREA. (BEFORE ENGINE TURNUP)

1. Remove WEAPON LOADED sign from cockpit.

#### 10-17. REARMING OR ARMING AREA. (AFTER ENGINE TURNUP)

1. Position safety man in view of pilot.

2. Check that launcher safety pin is installed.

3. (AIM-9D/G/H). Check that aft end of fins are engaged with hook portion of retainer ring.

#### CAUTION

The dome protector may remain installed after electrical power is applied, provided it is limited to a short period of time.

4. Remove missile protective covers.

5. Perform missile operation flashlight check on pilot's signal as follows (AIM-9B):

a. Turn flashlight on and slowly move flashlight in front of missile being checked.

b. Turn flashlight off on pilot's signal.

6. (TTU-304/E). Perform the following (AIM-9D/G/H):

a. Turn tester on.

b. Check that bulb is on by looking through peephole on side of head.

c. Move head of tester across missile nose about 1 to 2 feet in front of missile.

d. Turn tester off on pilot's signal.

7. Repeat steps 3 through 6 as applicable for each loaded missile.

8. Remove pylon ejector rack unit safety pin.

#### 10-18. ARMING AREA. (AFTER ENGINE TURNUP)

##### NOTE

Detent holddown pin remains installed during flight.

1. Remove launcher safety pins.

2. Indicate to pilot that aircraft is armed and personnel and equipment are clear.

#### 10-19. AFTER LANDING OR GROUND ABORT.

10-20. After landing or ground abort procedures pertain to an aircraft that has returned from a mission with weapons that have not been expended, or an aircraft which has ground aborted with weapons aboard.

#### 10-21. SAFING. (DEARMING AREA BEFORE ENGINE SHUTDOWN)

##### WARNING

If silver colored fluid is leaking from AIM-9B guidance control group (GCG), avoid bodily or clothing contact. Notify proper authority.

If any component is missing, loose, or damaged, notify proper authority.

1. (AIM-9B). GCG not leaking.

2. Install launcher safety pin(s).

3. (Loaded stations). Install ejector rack safety pins.

4. (AIM-9D/G/H). Install dome covers.



10-22. SAFING (DEARMING OR REARMING AREA IMMEDIATELY AFTER ENGINE SHUTDOWN).

NOTE

Umbilical need not be disconnected if aircraft remains in rearming area and power is not applied to aircraft.

1. If umbilical disconnect is required, perform the following:

- a. Depress forward fairing latch button and slide forward.
- b. Disconnect umbilical.
- c. Install shorting plug on missile umbilical.

2. Check that armament switches are in OFF or SAFE position (table 5-1).

3. (As applicable). Install missile dome protector and fuze cover.

NOTE

If soot is found around exhaust ports, rocker arm seals, or warhead joint, missile must be returned to assembly area.

4. Inspect servo gas exhaust ports/vent and rocker arm seals for evidence of soot.

10-23. TURNAROUND. Turnaround procedures apply only to aircraft not requiring reconfiguration.

1. Ensure safing procedures have been completed.
2. Aircraft positioned in a designated area, and grounded.
3. Check that firefighting equipment is available.

NOTE

Release and control system checks should be performed if operational conditions permit.

4. For stations to be loaded, perform the following:

- a. Perform aircraft preparation/inspection. (Refer to paragraph 10-5.)
- b. Perform weapon inspection for weapon to be loaded. (Refer to paragraph 10-7.)
- c. Load weapon according to weapon loading procedures. (Refer to paragraph 10-9.)
5. If umbilical was disconnected on turnaround mission, connect umbilical and perform postloading quality assurance check. (Refer to paragraph 10-12.)

6. Perform prior-to-launch procedures. (Refer to paragraph 10-14.)

10-24. WEAPON UNLOADING.

10-25. PREPARATION. Prepare as follows:

1. Aircraft positioned, firefighting equipment available.

WARNING

If silver colored liquid is leaking from AIM-9B guidance and control section, extreme care must be exercised to prevent liquid from contacting body or clothing.

2. (AIM-9B). GCG not leaking.
3. External power not applied and aircraft grounded.
4. Check that all armament switches are in OFF or SAFE position (figure 5-1).
5. (Loaded stations). Safety pins installed.
6. Install detent wrench safety pin in each launcher.
7. Install missile fuze covers.

8. If umbilical is not disconnected, perform the following:

- a. Depress forward fairing release button and open fairing.
- b. Disconnect umbilical.
- c. Install shorting plug on missile umbilical.

9. (AIM-9D/G/H). Release fins from retainer spring clips.

10. Disconnect launcher umbilical block hook from missile umbilical block.

11. (LAU-7). Release launcher aft snubbers by pulling launcher fairing handle aft to full down position.

12. (LAU-7/A-2 or -3). Remove detent holddown pin.

13. Unloading equipment positioned/rigged for unloading.

10-26. UNLOADING. Unload weapon as follows:

CAUTION

Do not use rollerons, fins or dome area guidance and control group for lifting points.

1. (AIM-9B). Ensure nonpropulsion attachment is available. Do not install until directed.
2. Provide support for missile.
3. Release launcher detent and forward snubber by rotating launcher detent wrench safety pin. Guide missile umbilical from launcher.



4. Slide missile aft to launcher rail slots.

CAUTION

Ensure handling equipment is configured to safely accept missile.

5. Disengage missile hangers from slots, remove missile, and secure to handling equipment.

6. (AIM-9B). Position caging pin to cage rolleron. Install nonpropulsion attachment on aft end of missile.

7. Install launcher umbilical connector dust cover.

8. Install retaining clip on missile umbilical.

9. Close launcher fairings.

10. Install detent holddown pin.

11. Remove weapon from area.

12. Repeat steps 1 through 11 for remaining missile.



## SECTION XI

### ROCKET/LAUNCHERS

#### 11-1. INTRODUCTION.

11-2. This section contains necessary AV-8A loading/unloading information for the weapons listed below. Procedures contain information necessary to assure safety and reliability, provided the assumptions in paragraph 1-22 have been complied with.

#### WARNING

This manual does not authorize station loading for flight. For specific authorization, refer to Tactical Manual.

LAU-10A/A  
LAU-10B/A  
LAU-60/A  
LAU-61/A  
LAU-68/A  
LAU-69/A

#### 11-3. GROUND SUPPORT EQUIPMENT (GSE).

11-4. For ground support equipment refer to tables 5-4 and 5-5. Test equipment and special tools needed to perform loading operations are as follows:

1. Test Equipment.
  - a. Armament Firing Circuit Test Set - TS-2875A/AWM.
  - b. Aircraft Firing Test Set AN/AWM-54.
2. Special Tools.
  - a. Ground Safety Pin/Manual Release Tool.

#### 11-5. AIRCRAFT PREPARATION/INSPECTION.

11-6. The following procedures will ensure aircraft is in a safe condition prior to performing loading operations. Perform procedures in sequence indicated; certain steps will not apply depending upon aircraft configuration.

1. Check that aircraft is configured to receive weapons in accordance with section III.
2. Check that required release and control system checks have been completed in accordance with section IV.
3. Check that aircraft common procedures have been complied with in accordance with section V.
4. Ensure that ballistics plug is installed.
5. Check pylon for the following:
  - a. Breech caps and cartridges removed.

b. Ensure 0.037 inch throttles (orifice) are installed in stations to be loaded. Tighten to 84 inch-pounds.

c. Ensure breech housing is clean and very lightly oiled.

d. Ground safety pin/manual release tool installed in cocking insert.

e. Sway brace adjusted and jam nut positioned below sway brace arm.

f. Ejector rack unit hooks are open.

g. Repeat steps a through f for each station to be loaded.

#### 11-7. WEAPON INSPECTION.

11-8. If inspection of a launcher/rocket reveals that it is not acceptable for loading and can not be made acceptable in a reasonable period of time, the launcher shall be returned to the assembly area. Notify proper authority. Inspect each rocket launcher for loading as follows:

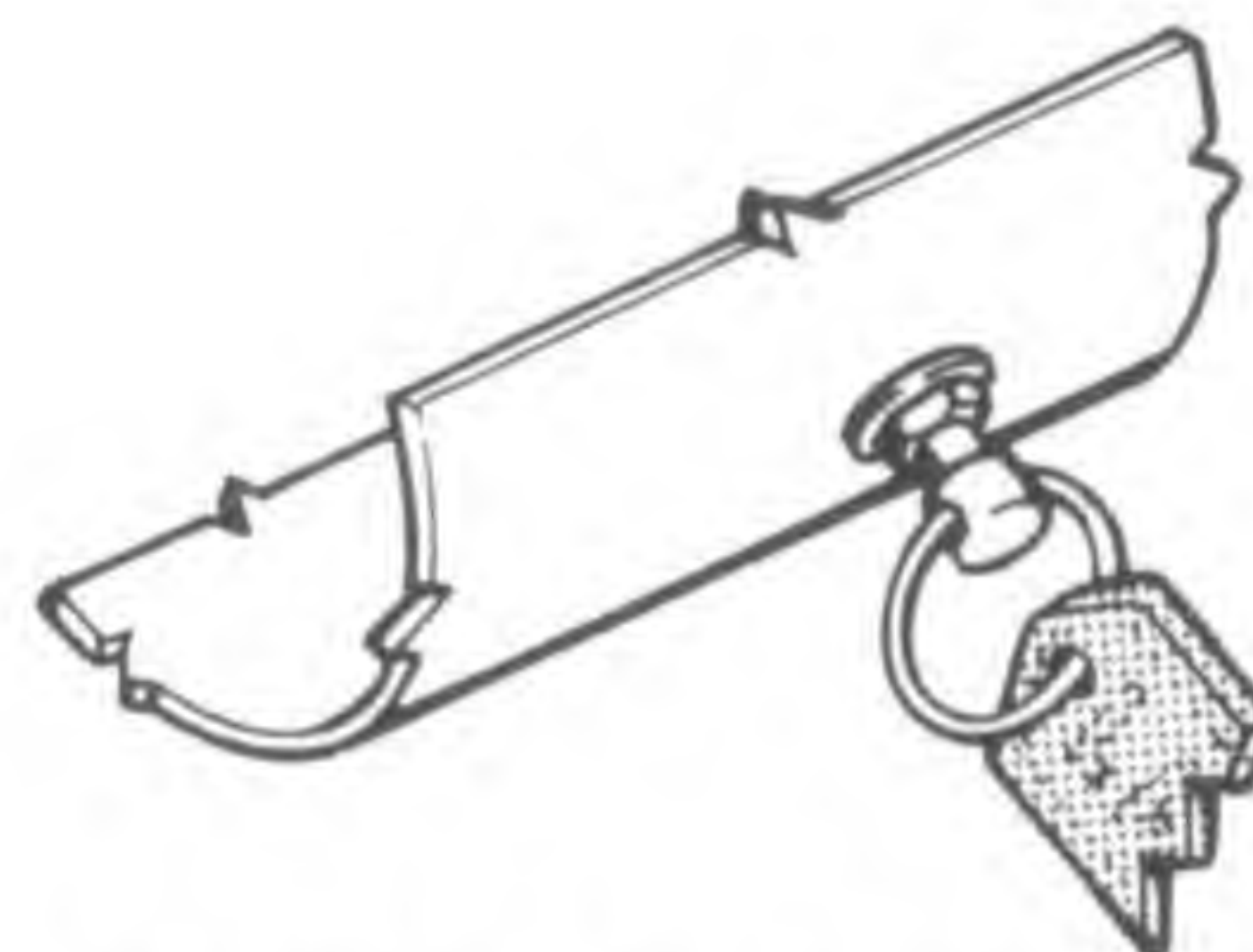
1. LAU-10A/A, -B/A:

#### WARNING

LAU-10A/A launchers have been checked in accordance with AAC 525.

- a. Ensure that safety switch/detent safety pin is installed (figure 11-1).
  - b. Ensure that detent lift arms are in fire position (figure 11-2).
  - c. Position RIPPLE SINGLE selector switch as directed (figure 11-3).
  - d. Ensure that all rockets are in full aft position and latched in place.
  - e. Ensure that 14-inch suspension lugs are installed with base of lug eye flush with weapon surface and aligned.
  - f. Ensure that frangible fairings are available and not damaged.
2. LAU-60/A, LAU-61/A, LAU-68/A and LAU-69/A.
    - a. Ensure that breaker switch detent pin is installed (figure 11-1).

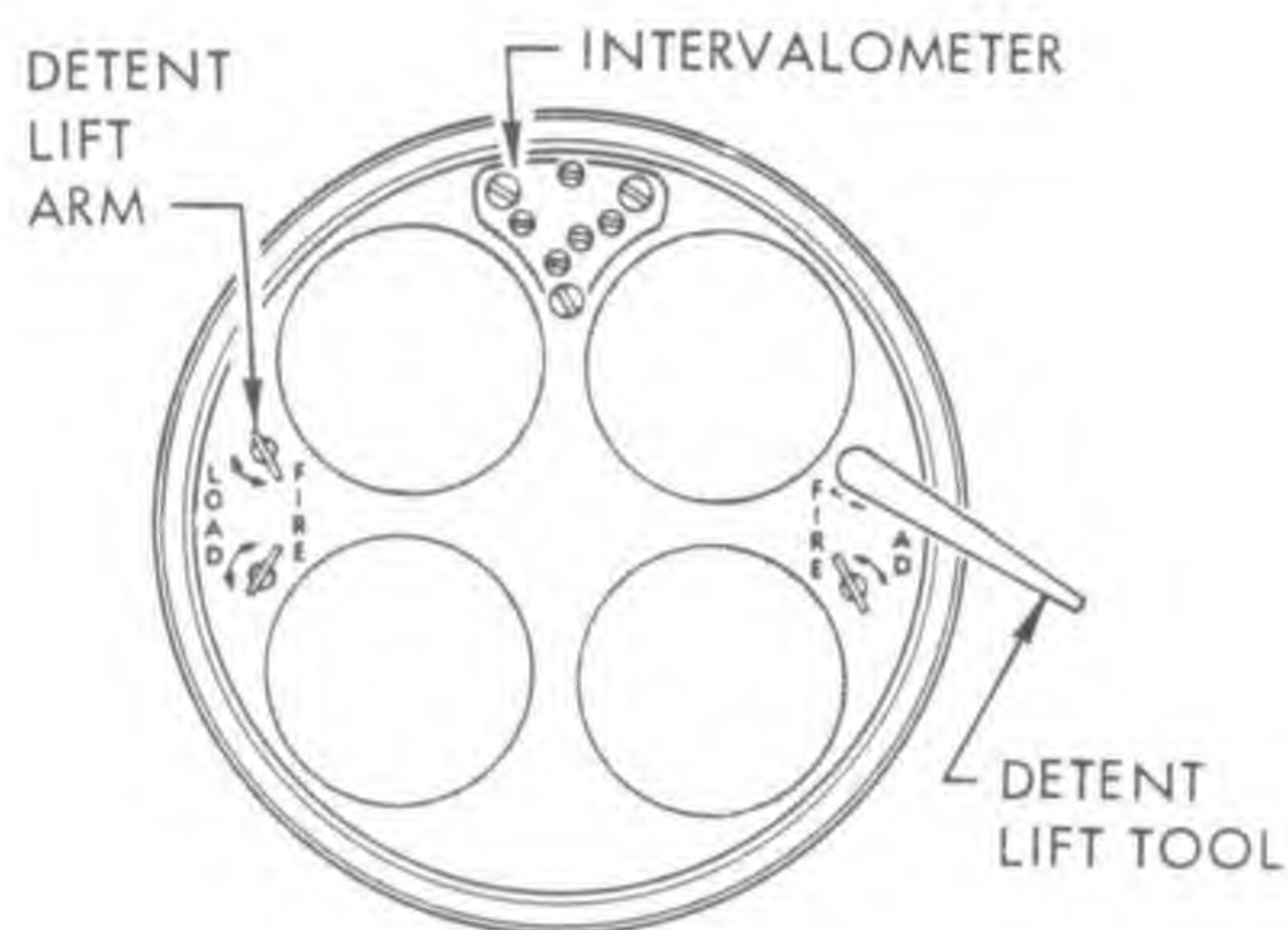




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Figure 11-1. Launcher Safing Devices





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Figure 11-2. LAU-10 Series Detent Lift Arm Tool

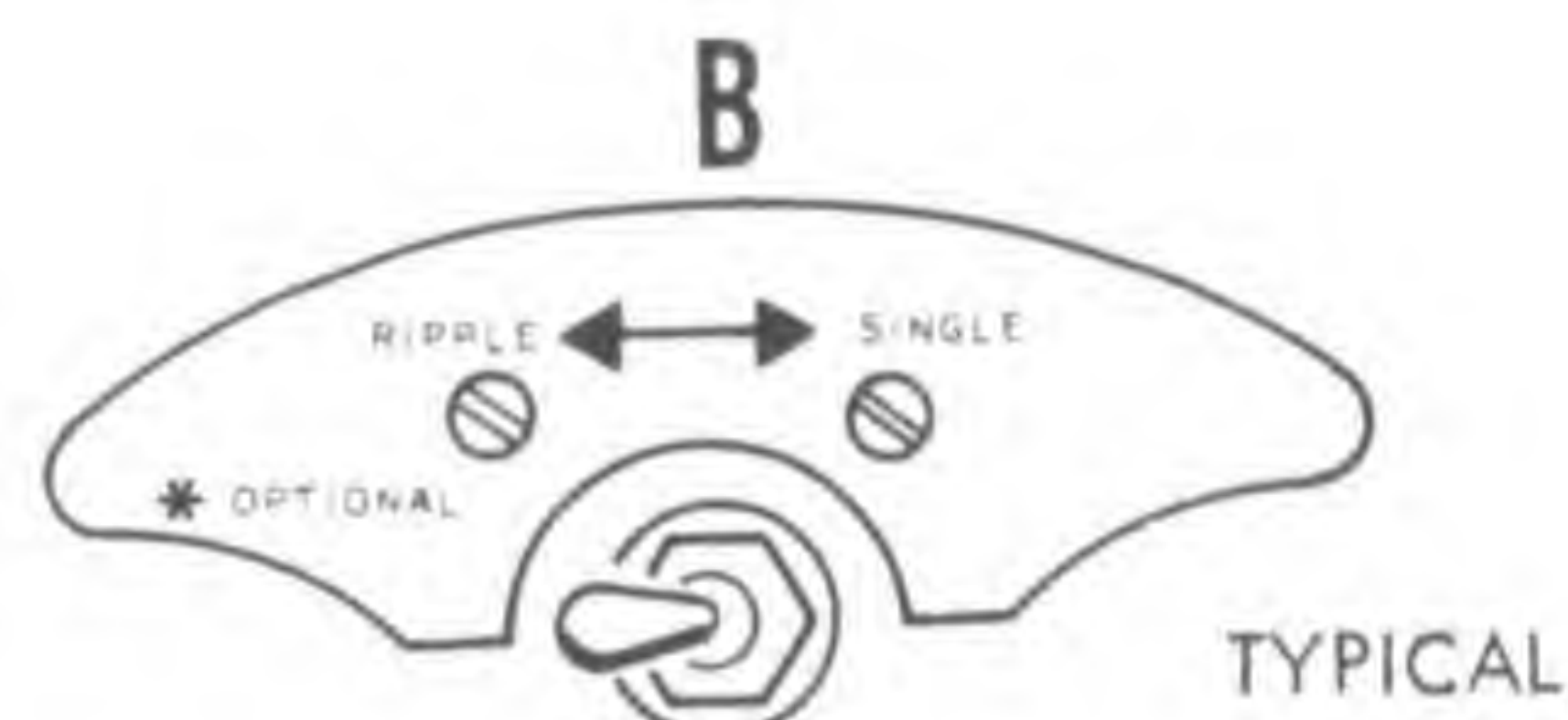
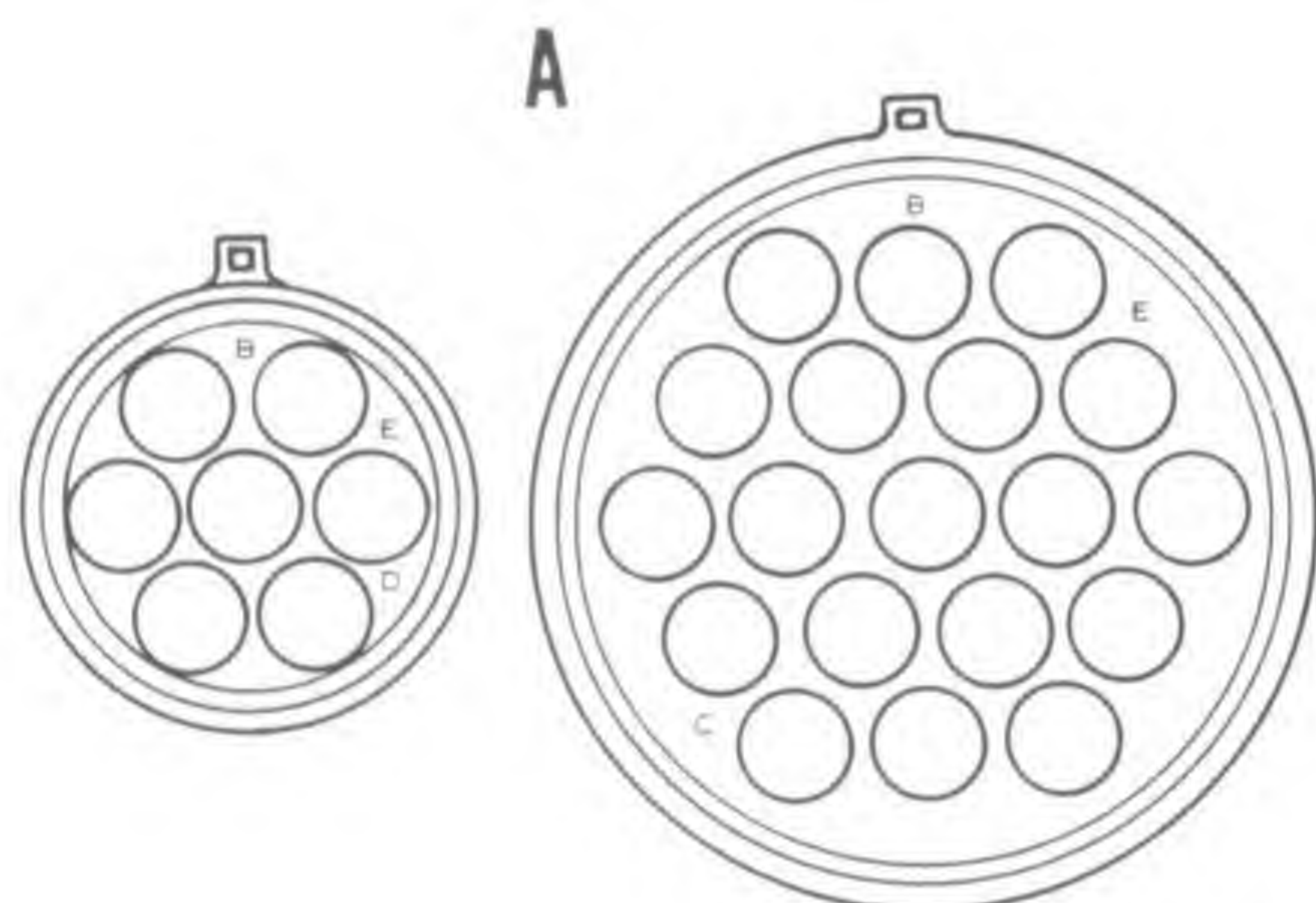
b. Ensure that suspension lugs are installed with base of lug eye flush with weapon surface and aligned.

**WARNING**

Shunt type intervalometer must not be installed, use SWU-31/A intervalometer in LAU-60/A.

c. Ensure that intervalometer is set to ARM and RIPPLE SINGLE switch set as directed (figure 11-3).

d. (If applicable). Ensure that frangible fairings are available and not damaged.



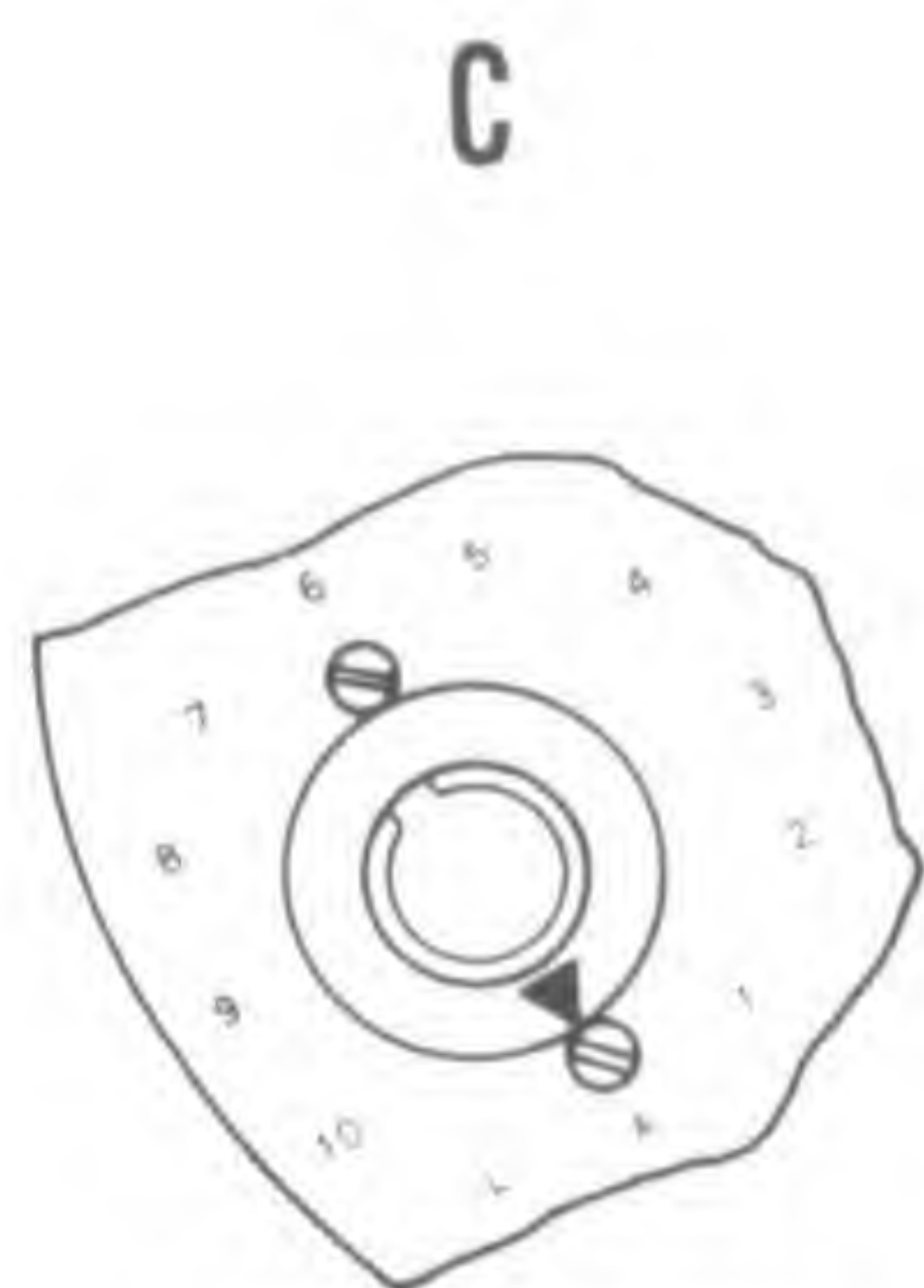
MODE SELECTOR SWITCH

LAU-61/A

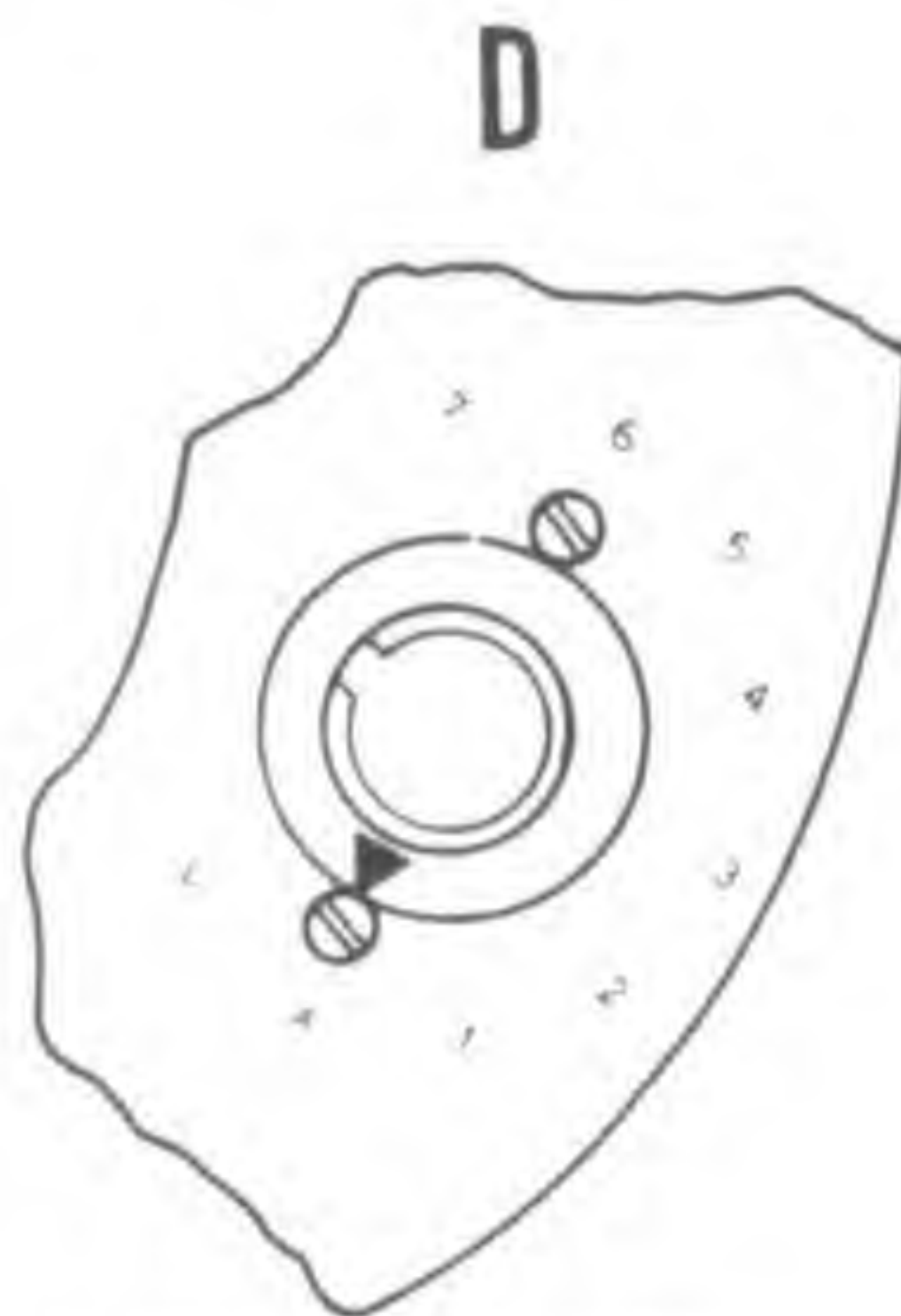
LAU-68/A

LAU-69/A

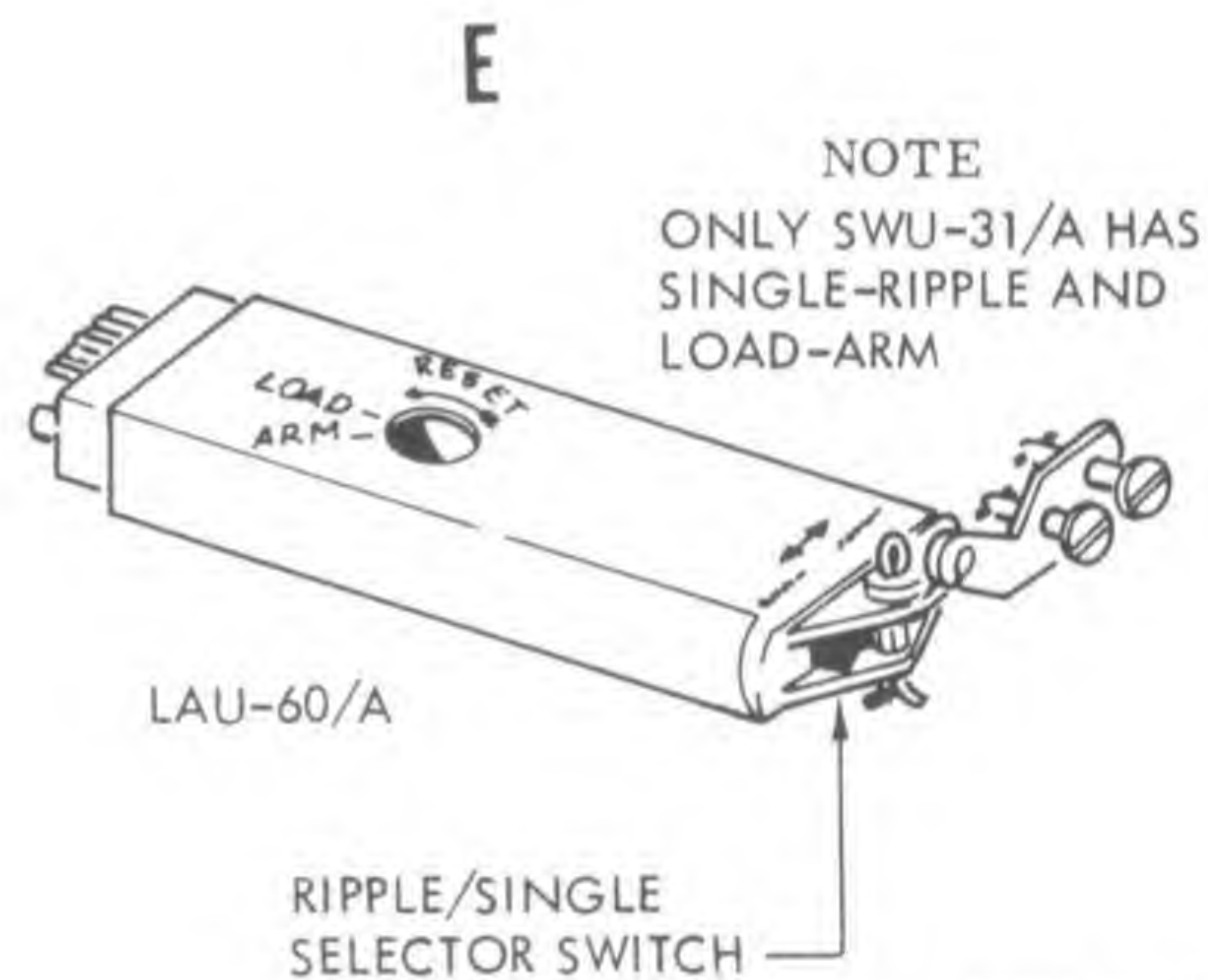
\*LAU-10/A, LAU-10A/A, LAU-10B/A ONLY



INTERVALOMETER  
LAU-61/A  
LAU-69/A



INTERVALOMETER  
LAU-68/A



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Figure 11-3. Launcher Intervalometers/Ripple/Single



WARNING

RF barriers are required when operating in a HERO environment as defined in NAVAIR 16-1-529. LAU-61/A and 68/A launchers require aft barrier only.

e. (As applicable). Ensure that RF barrier is installed on both ends of launcher and is not damaged.

f. Ensure that RF barrier is installed as applicable and not damaged.

g. Remove dust caps from forward and aft electrical receptacles and ensure that contact pins are not bent or damaged.

h. Install dust caps.

3. (5.00 inch FFAR Fuze). Not damaged; installation wrench available.

4. Repeat applicable steps 1 through 3 for each weapon.

11-9. WEAPON LOADING.

11-10. PREPARATION. Check for the following:

1. Aircraft preparation/inspection (paragraph 11-5) and weapon inspection (paragraph 11-7) is completed.

WARNING

Electrical power shall not be applied to the aircraft at any time during loading procedures.

2. Ensure battery switches are OFF.

3. External power removed from aircraft.

4. Aircraft grounded.

5. Check armament switches are in OFF or SAFE position (table 5-1).

6. Patching switches located on weapon control panel set as required (table 5-2).

7. Store type indicator located on weapon control panel set to RP position.

8. Weapon/loading equipment positioned/rigged for loading.

11-11. LOADING. Load as follows:

1. Using available authorized loading equipment, raise weapon until launcher lugs are aligned with ejector rack unit hooks.

2. Latch ejector rack unit hooks.

3. Visually inspect ejector rack unit indicates locked. (Operating arm not visible in ground safety pin hole).

4. Gently shake weapon to ensure weapon is supported by ejector rack unit hooks.

5. Install ejector rack unit safety pin.

6. Lower loading equipment sufficiently to clear weapon and remove.

7. Adjust sway braces so weapon is centered on ejector rack unit. Tighten sway braces to 84 inch-pounds. Tighten jam nuts.

8. (As applicable). Install 5.00-inch FFAR fuze.

9. (If applicable). Install fairings.

10. Repeat applicable steps 1 through 9 for each weapon to be loaded.

11. Install cartridges in breech chamber of each loaded ejector rack unit. Tighten breech caps 444 inch-pounds.

12. Place WEAPON LOADED sign in cockpit.

11-12. POSTLOADING, QUALITY ASSURANCE.

11-13. Postloading checks are accomplished immediately after weapons loading to ensure weapons are loaded properly/safely prior to launch.

1. Ensure armament switches are in OFF or SAFE position (table 5-1).

2. Ensure WEAPON LOADED sign is in cockpit.

3. Ensure ballistic plug position, located in left hand equipment bay, is in A position only.

4. Ensure patching switches is set to R.

5. Ensure store indicator is set to RP.

6. Ensure pylon ejector rack unit safety pins are installed.

7. Ensure launchers are not electrically connected.

8. Sway braces adjusted; jam nuts are secured against sway brace.

9. Cartridges installed in each loaded ejector rack unit and breech caps tight and 0.037 inch throttles (orifice) are installed.

10. Check mode selector switch is set as directed.

11. LAU-10/A, LAU-10A/A, and LAU-10B/A, detent lift arm set to FIRE.

12. (If applicable). Check that fairings are installed.

13. Repeat applicable steps 6 through 12 for each loaded station.

14. Report status to proper authority.



11-14. PRIOR TO LAUNCH.

11-15. Prior to launch procedures consist of removal of safety devices and ensuring integrity of weapon system.

11-16. REARMING AREA. (BEFORE ENGINE TURNUP).

1. Remove WEAPON LOADED sign from cockpit.
2. Remove pylon ejector rack unit safety pins.

11-17. REARMING OR ARMING AREA. (AFTER ENGINE TURNUP).

WARNING

Engine nozzles must be aft and engine at ground idle prior to approaching aircraft.

Pilot must place both hands in full view prior to commencing stray voltage check.

If stray voltage is detected, do not electrically connect launcher. Notify proper authority.

1. Position safety man in view of pilot.
2. Perform stray voltage check on pylon SNEB rocket connector in accordance with paragraph 5-13 and 5-13B.
3. Repeat step 2 for each loaded station.

11-18. ARMING AREA (AFTER ENGINE TURNUP):

WARNING

Engine nozzles must be aft and engine at ground idle prior to approaching aircraft.

Pilot must place both hands in full view prior to electrically connecting launcher.

1. Position safety man in view of pilot.
2. Electrically connect launchers.
3. Secure access doors.
4. Remove safety switch pin/detent safety pin.
5. Indicate to pilot that aircraft is armed and personnel and equipment are clear.

11-19. AFTER LANDING OR GROUND ABORT.

11-20. After landing or ground abort procedures pertain to an aircraft that has returned from a mission with weapons that have not been expended or an aircraft which has ground aborted with weapons aboard.

11-21. SAFING. (DEARMING AREA BEFORE ENGINE SHUTDOWN).

WARNING

Engine nozzles must be aft and engine at ground idle prior to approaching aircraft.

Pilot must place both hands in full view prior to safing aircraft/weapon.

1. Position safety man in view of pilot.
2. Safe rocket launcher as follows:

a. (LAU-10A/A and LAU-10B/A). Install safety switch pin/detent safety pin in safety switch. Disconnect SNEB rocket connector from launcher.

b. (LAU-60/A, LAU-61/A (New) and LAU-68/A (New)). Install detent safety pin. Disconnect SNEB rocket connector from launcher.

c. (LAU-61/A, LAU-68/A and LAU-69/A). Install shorting pin in shorting pin receptacle. Disconnect SNEB rocket connector from launcher.

11-22. SAFING. (DEARMING OR REARMING AREA IMMEDIATELY AFTER ENGINE SHUTDOWN).

1. Install ejector rack unit safety pin in all loaded stations.
2. External power not applied and aircraft grounded.
3. Check that all armament switches are in OFF or SAFE position (table 5-1).

WARNING

If fired launcher has unexpended rockets in any tube or unfired launcher has cracked/distorted fairing, notify proper authority.

4. Inspect fired launchers to ensure no rockets remain in launcher tubes.

WARNING

If any component is missing, loose, or damaged, notify proper authority.

5. Inspect unfired launchers/nose fairings for cracks or distortion.

11-23. TURNAROUND. Turnaround procedures apply only to aircraft not requiring reconfiguration.

1. Ensure safing procedures have been completed.
2. Aircraft positioned in a designated area and grounded.
3. Check that firefighting equipment is available.



NOTE

Release and control system checks should be performed if operational conditions permit.

4. For stations to be loaded, perform the following:

a. Perform aircraft preparation/inspection. (Refer to paragraph 11-5).

b. Perform weapon inspection for weapon to be loaded. (Refer to paragraph 11-7).

c. Load weapon according to weapon loading procedures. (Refer to paragraph 11-9).

5. Perform postloading quality assurance check. (Refer to paragraph 11-12).

6. Perform prior-to-launch procedures. (Refer to paragraph 11-14).

11-24. WEAPON UNLOADING.

11-25. PREPARATION. Prepare aircraft as follows:

1. Aircraft positioned, firefighting equipment available.

2. External power not applied and aircraft grounded.

3. Check that all armament switches are in OFF or SAFE position (table 5-1).

4. (Loaded stations). Safety pin installed.

5. Remove pylon cartridges.

6. Retract sway braces.

7. Ensure safety switch pin/detent safety pin is installed.

8. Check that SNEB rocket connector is disconnected from launcher.

9. (If applicable). Remove launcher fairings.

10. (If applicable). Remove 5.00 inch FFAR fuze.

11. Unloading/handling equipment positioned/rigged for unloading.

11-26. UNLOADING. Unload weapons as follows:

1. Support weapon with handling equipment.

2. Raise weapon until lugs float in suspension rack hooks.

3. Remove pylon ejector rack unit safety pin.

4. Open ejector rack unit hooks and lower weapon. Remove weapon from area.

5. Repeat steps 1 through 4 for each weapon to be unloaded.



## SECTION XII

### CLUSTER BOMB UNIT/MK 20 MOD 2 AND 3 (ROCKEYE)

#### 12-1. INTRODUCTION.

12-2. This section contains necessary AV-8A loading/unloading information for the weapons listed below. Procedures contain information necessary to assure safety and reliability, provided the assumptions in paragraph 1-22 have been complied with.

#### WARNING

This manual does not authorize station loading for flight. For specific authorization, refer to Tactical Manual.

CBU-24/B MOD, A/B, C/B  
CBU-29/B MOD, A/B, C/B  
CBU-49/B MOD, A/B, C/B  
ROCKEYE (MK 20 MOD 2/3)

#### 12-3. GROUND SUPPORT EQUIPMENT (GSE).

12-4. For ground support equipment, refer to tables 2-4 and 2-5. Test equipment and special tools needed to perform loading operations are as follows:

1. Test Equipment.
  - a. None
2. Special Tools.
  - b. Ground Safety Pin/Manual Release Tool.

#### 12-5. AIRCRAFT PREPARATION/ INSPECTION.

12-6. The following procedures will ensure aircraft is in a safe condition prior to performing loading operations. Perform procedures in sequence indicated; certain steps will not apply depending upon aircraft configuration.

1. Check that aircraft is configured to receive weapons in accordance with section III.
2. Check that required release and control system checks have been completed in accordance with section IV.
3. Check that aircraft common procedures have been complied with in accordance with section V.
4. Ensure ballistics plug is installed.
5. Check pylon for the following:
  - a. Breech caps and cartridges removed.

#### NOTE

Rockeye requires 0.156 inch throttle (orifice) in station 3. CBU requires 0.156 inch throttle

(orifice) in stations 2, 3 and 4. All other stations require 0.037 inch throttles (orifice).

b. Ensure that throttles (orifice) are installed in the pylon ejector rack unit. Tighten to 84 inch-pounds.

c. Ensure breech housing is clean and very lightly oiled.

d. Ground safety pin/manual release tool installed in cocking insert.

e. Sway braces adjusted and jam nut positioned below sway brace arm.

f. Ejector rack unit hooks are open.

g. Repeat steps a through f for each station to be loaded.

#### 12-7. WEAPON INSPECTION.

12-8. If inspection of a weapon reveals that it is not acceptable for loading and can not be made acceptable in a reasonable period of time, the weapon shall be returned to the assembly area. Notify proper authority.

#### WARNING

Do not handle or store a CBU with M907 fuze installed. Bomblets accidentally released from a CBU dispenser or exposed to view will not be handled or moved under any circumstances and must be promptly reported to proper authority.

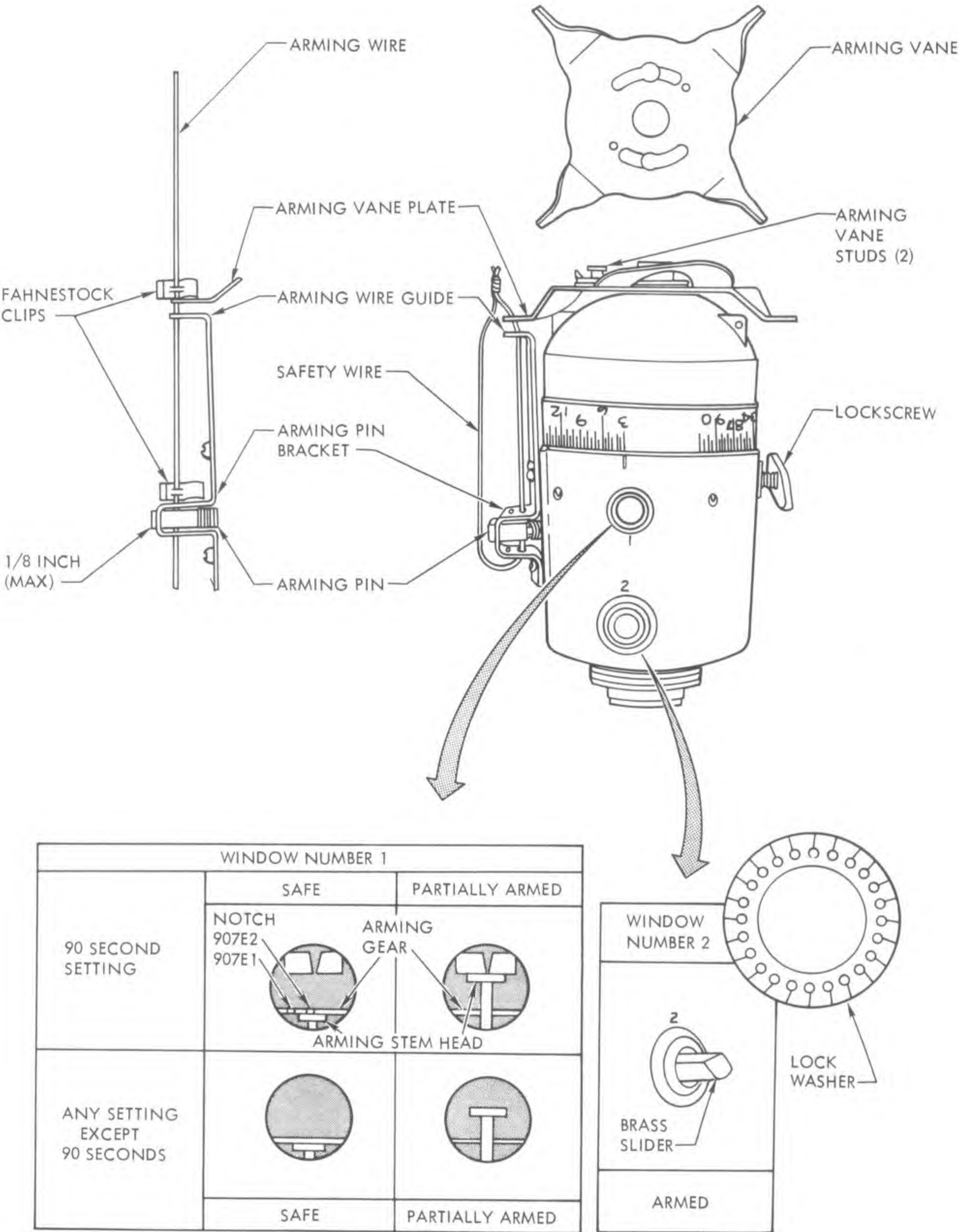
#### CAUTION

When CBU's are handled outside their containers, they must be supported at the hard point markings.

#### 12-9. CBU INSPECTION. Inspect as follows:

1. Body for damage.
2. Nose shipping plug removed.
3. Fuze cavity free of foreign material and not damaged.
4. Suspension lugs installed and aligned.
5. Fins aligned and positioned in X position in respect to suspension lug.
6. Fin assembly for damage and security.





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Figure 12-1. M907E1/E2 Mechanical Time Nose Fuze



## 12-10. M907E1/E2 FUZE INSPECTION (figure 12-1).

### 1. Inspect fuze as follows:

#### WARNING

The M907 is a time fuze. When fully armed, it will detonate at the end of the set time delay. Notify proper authority immediately if an armed or a partially armed condition is indicated.

If the brass slider protrudes into window number 2 (lower), the fuze is armed.

- a. Brass slider does not protrude through the foil disc in window number 2.

#### NOTE

The ARM/SAFE indications printed on the warning tag normally shipped with the fuze are superseded by the following checks.

- b. Safety wire installed through the arming vane plate, arming wire guide, arming pin bracket, and arming pin. Ensure arming pin does not protrude from the arming pin bracket more than 1/8 inch.

- c. Loosen lockcrew and set time delay at 90 seconds. Check for the following indications:

#### NOTE

Index pointer will always be visible at the 90-second setting regardless of the safe or armed condition of the fuze. The index pointer and the notch in the arming gear will not be visible at settings other than 90 seconds.

- (1) Black index pointer on a white background visible in upper edge of window.
- (2) Rim of arming gear visible near the bottom of the window (about 1/8 inch below index pointer).

#### WARNING

If the notch is not aligned, the fuze is partially armed.

#### NOTE

For M907E1 fuzes, notch will not be aligned with pointer but will align with the left edge of the arming stem head.

- (3) Small notch in the arming gear aligned with the pointer or left edge of the arming stem head.

#### WARNING

If the arming stem head appears in the center of the window, the fuze is fully armed.

#### NOTE

At any fuze setting, the arming stem head must be visible at bottom edge of the window

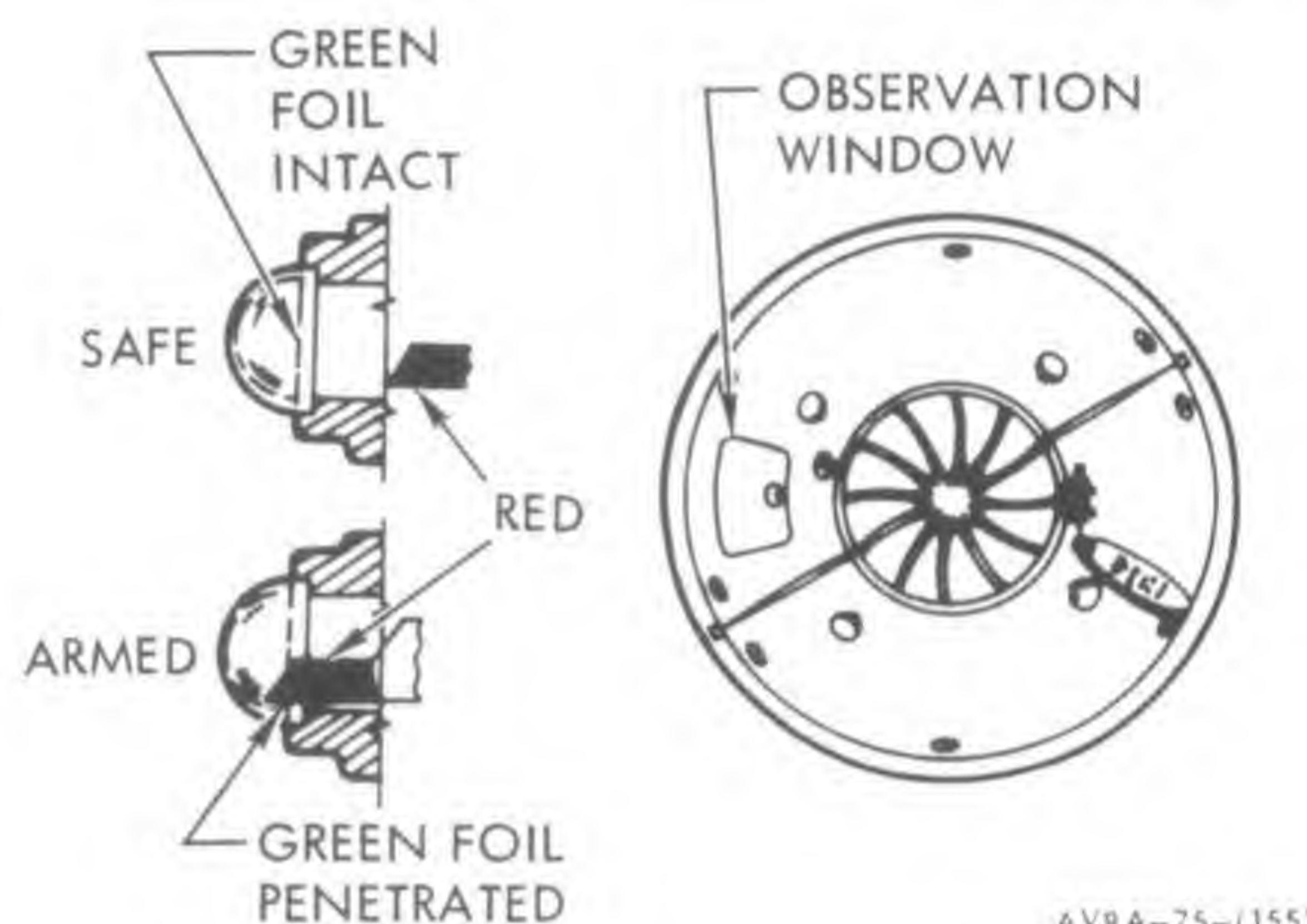


Figure 12-2. Fuze Safe/Arm Indication

and must be engaged under the rim of the arming gear.

- (4) Arming stem head visible at bottom edge of window number 1 (upper) and engaged under the rim of the arming gear.

- d. Arming vane installed or available. Ensure arming vane not damaged.

- e. Ensure external surfaces and threads are clean and not damaged.

#### NOTE

The time delay may be set after fuze is installed in weapon.

- f. Set desired time delay and tighten the lock-screw. Recheck window number 1 (upper) to ensure that the arming stem head is still engaged under the arming gear.

## 12-11. MK 20 MOD 2 AND 3 (ROCKEYE) INSPECTION. Inspect as follows:

#### WARNING

The MK 339 is a time fuze. If any unsafe indications are noted, timer may be running or fuze may be armed. Keep area clear and notify proper authority immediately.

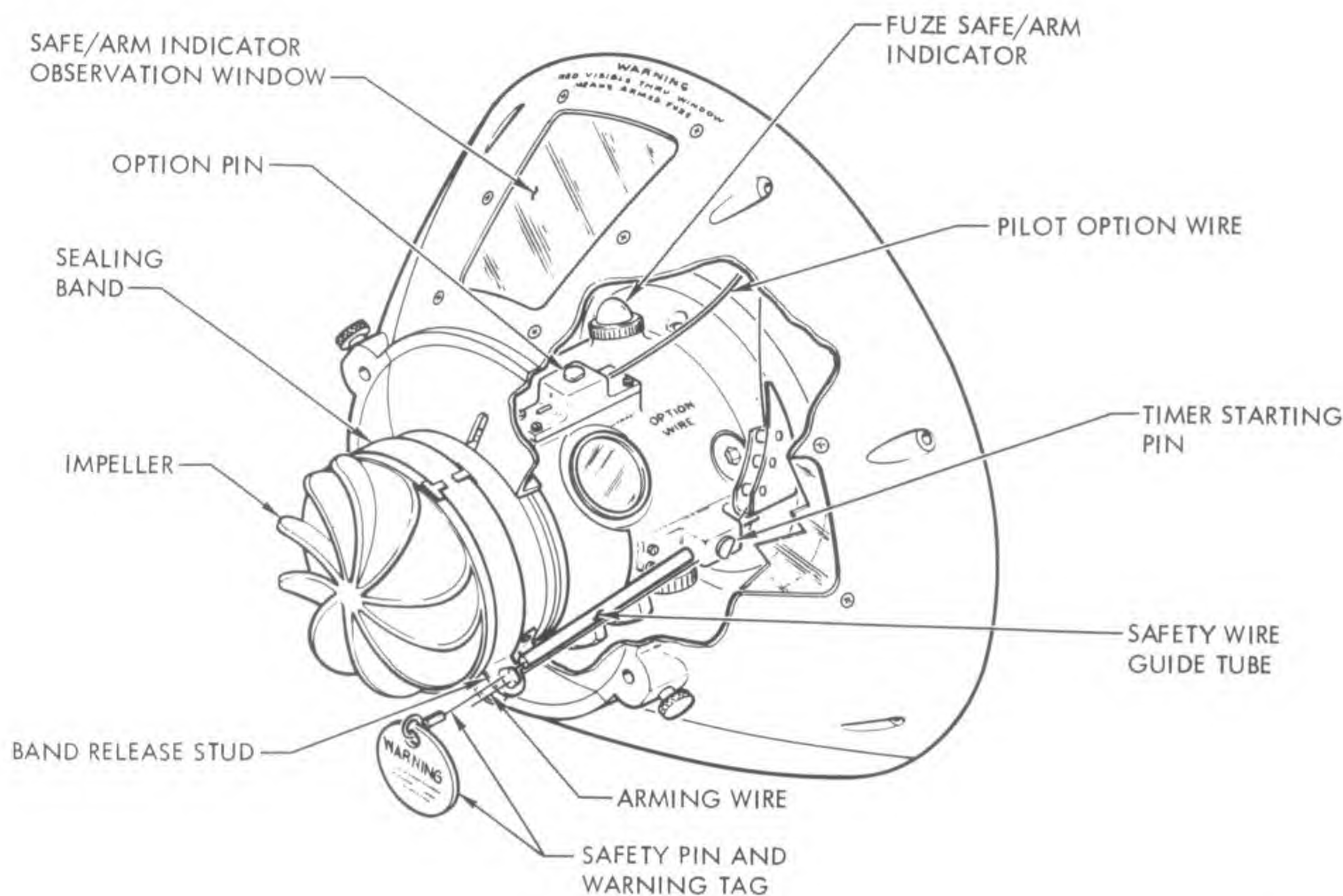
1. Remove fuze protective cover.

#### NOTE

Some early model fuzes do not contain a green disc in the plastic bubble. With these fuzes in the safe condition, the red tip of the SAFE/ARM indicator may be visible but will not protrude into the bubble. However, in the armed condition, the red SAFE/ARM indicator will protrude into the bubble and will be clearly visible from any angle.

2. Check through observation window that red tip of the SAFE/ARM indicator does not protrude through green disc or protrude past fuze housing into plastic bubble on side of fuze (figure 12-2).





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Figure 12-3. Arming Wire Installed

3. (MOD 2). Fuze safety pin and primary wire installed.

4. Ensure primary wire protrudes beyond stud of fuze band 1/4 to 1/2 inch (figure 12-3).

#### CAUTION

If option pin has been released, fuze can be used in the option mode only. Do not attempt to reset option pin.

5. (MOD 3). Fuze safety pin, primary and option wire installed.

6. Fuze impeller is not dented or damaged (figure 12-3).

7. Time interval set and marked on nose fairing. Install fuze protector cover.

8. Fin release wire and safety pin installed (figure 12-4).

9. Fin release band positioned and aligned (figure 12-4).

10. Each fin detent locking device operates freely when locking pin is depressed and released (figure 12-4).

11. Fin release wire in conduit and conduits not damaged (figure 12-4).

12. Primary wire extractors positioned (figure 12-5).

13. (MOD 3). Pilot option extractor wire taped to bomb body (figure 12-6).

14. Repeat applicable steps 1 through 13 for each weapon to be loaded.

#### 12-13. WEAPON LOADING.

12-14. PREPARATION. Check for the following:

1. Aircraft preparation/inspection (paragraph 12-5) and weapon inspection (paragraph 12-7) is completed.

#### WARNING

Electrical power shall not be applied to the aircraft at any time during loading procedures.

2. Ensure battery switches are OFF.

3. External power removed from aircraft.

4. Aircraft grounded.



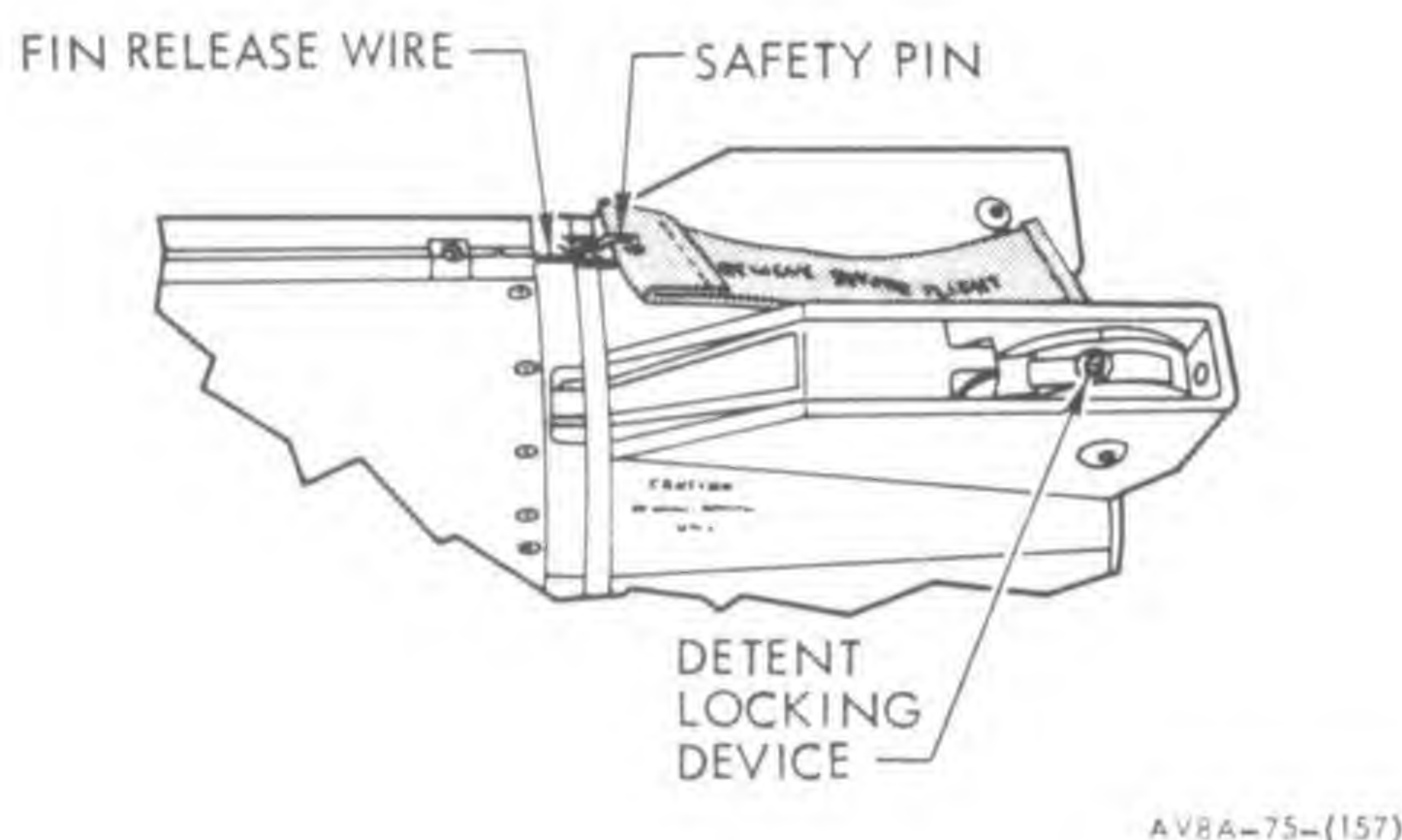


Figure 12-4. Fin Release Wire and Detent Locking Device Inspection

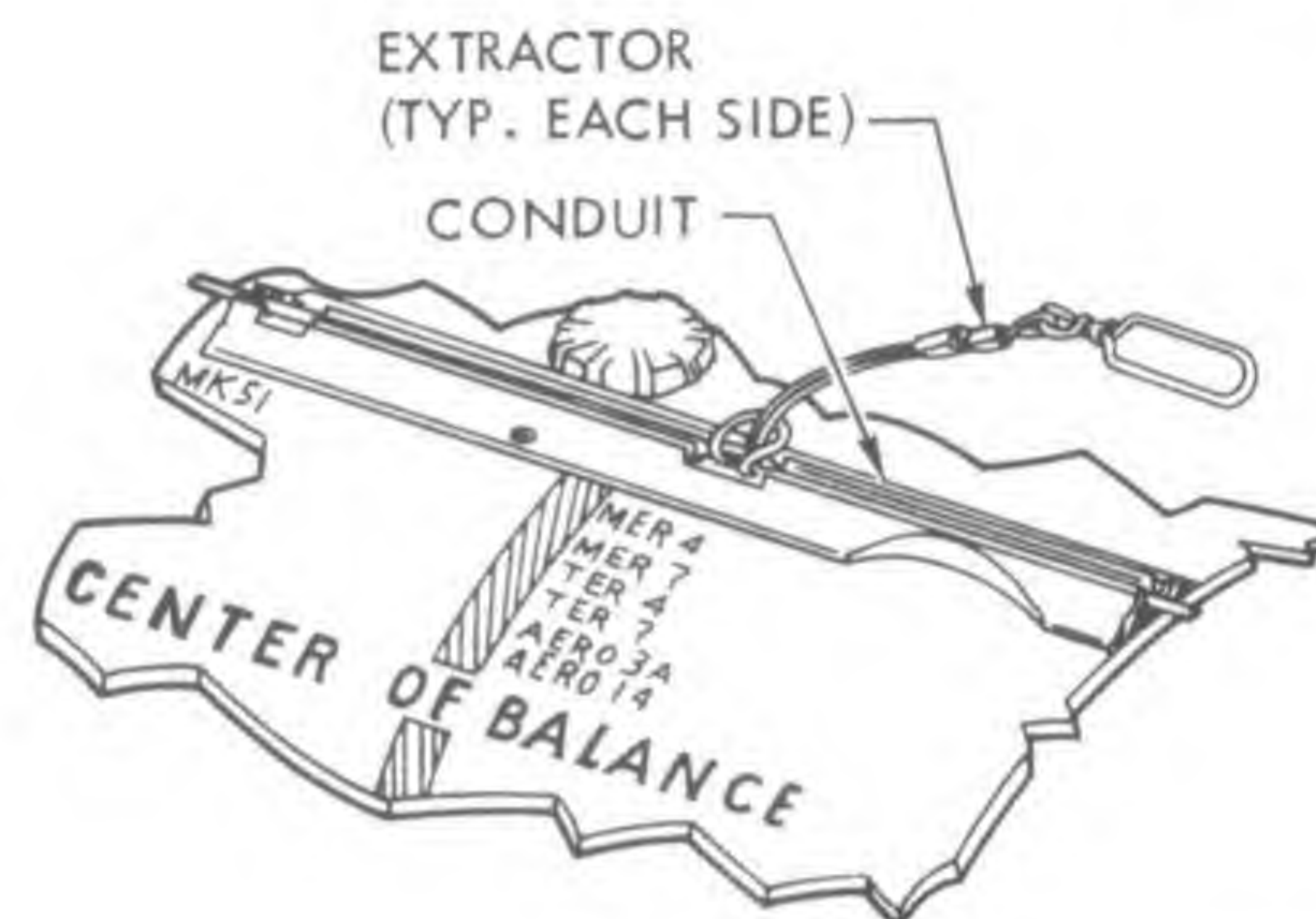


Figure 12-5. Extractor Positioned

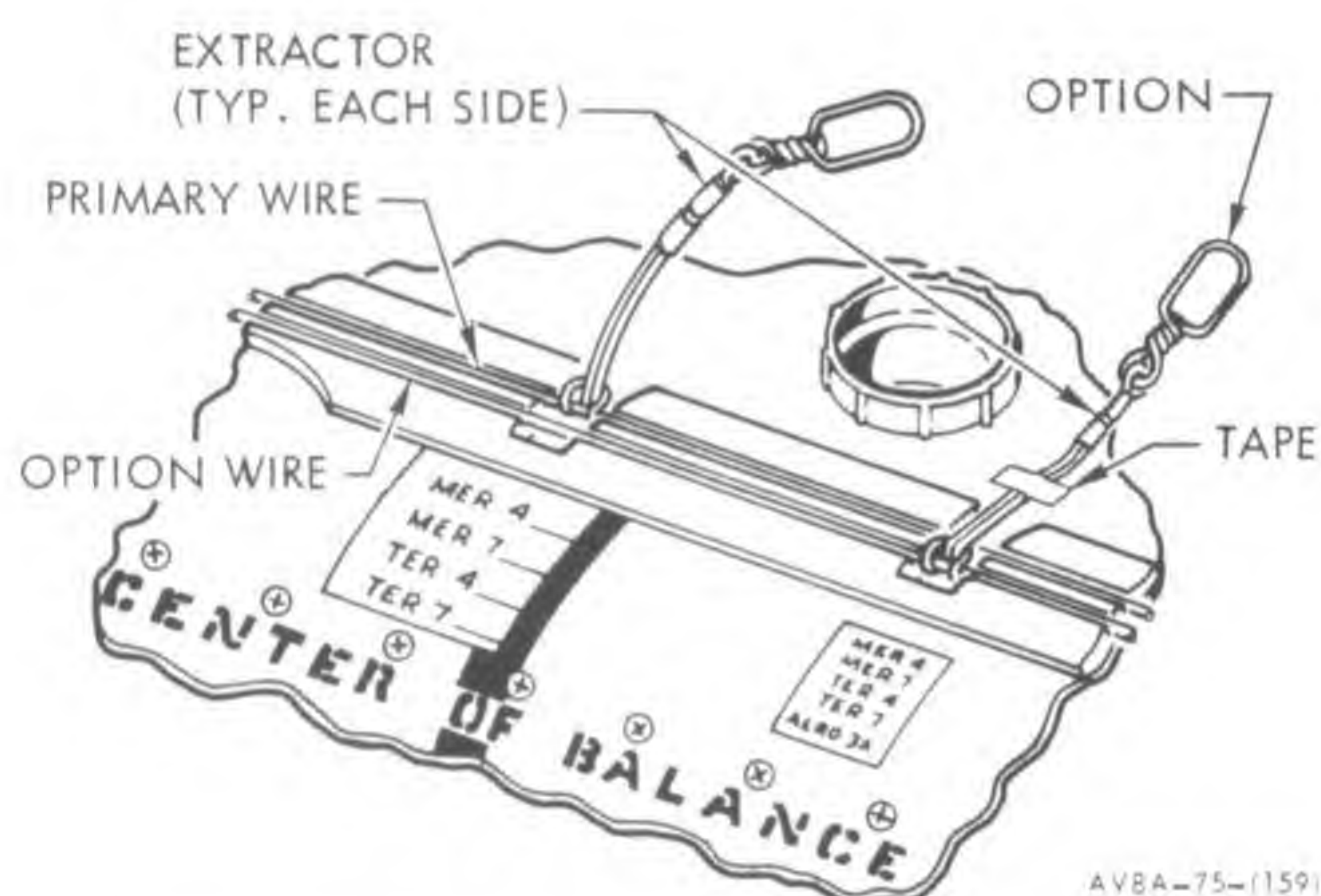


Figure 12-6. MK 20 (MOD 3) Option Wire Extractor Taped

5. Check armament switches are in OFF or SAFE position (table 5-1).
6. Patching switches located on weapon control panel set as required (table 5-2).
7. Store type indicator located on weapon control panel set to B (c) position.
8. Weapon/loading equipment positioned/rigged for loading.

12-15. LOADING. Load as follows:

**WARNING**

(CBU) If bomblets are released or exposed to view do not attempt to move or handle the CBU or bomblet. Notify proper authority.

1. Using available authorized loading equipment raise weapon until weapon lugs are aligned with ejector rack unit hooks.
2. Latch ejector rack unit.

3. Visually inspect ejector rack unit indicates locked. (Operating arm not visible in ground safety pin hole).
4. Gently shake weapon to ensure weapon is supported by ejector rack unit hooks.
5. Install ejector rack unit safety pin.
6. Lower loading equipment sufficiently to clear weapon and remove.
7. Adjust sway braces so weapon is centered on ejector rack unit. Tighten sway braces to 84 inch-pounds. Tighten jam nuts.

**NOTE**

Fuse delay may be set before installing in weapon.

8. CBU-24, -29, -49. Install fuze and set delay in CBU as follows:

- a. Ensure that threads in weapon nose well are clean and not damaged.

**CAUTION**

When installing the fuze in CBU weapons, use the washer furnished with the weapon. Do not use the washer furnished with the fuze.

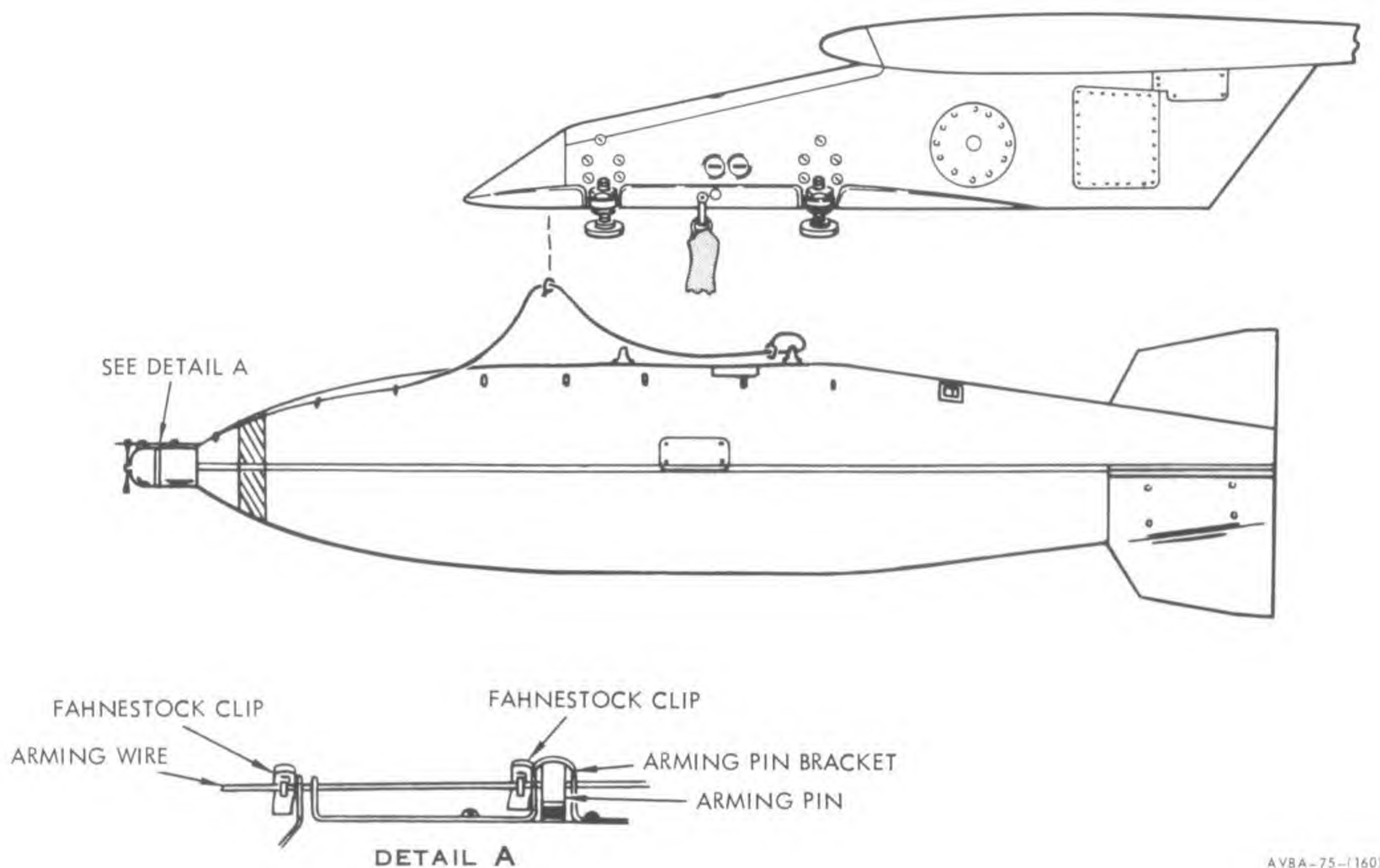
- b. Place lockwasher on the base of the fuze.

- c. Insert fuze in the nose well and handtighten. Align the arming pin on the fuze to within 45° of weapon suspension lugs.

- d. If not already installed, install the arming vane as follows:

- (1) With the lettering on vane facing away from the fuze, place holes in the vane over the studs on arming vane plate.
- (2) Rotate vane clockwise until studs are locked in place.





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Figure 12-7. CBU Arming Wire Installation

9. Install arming wire in fuze as follows:

NOTE

The arming pin bracket assembly must be aligned within 45° of the weapon lug center line.

a. Loop arming wire around aft suspension lug.

b. Install swivel loop and route arming wire through arming wire guides on weapon and through upper hole in arming pin bracket and arming pin (figure 12-7).

c. Install one Fahnestock clip on arming wire and further route arming wire through forward portion of arming pin bracket and through arming vane plate assembly (figure 12-7).

d. Install second Fahnestock clip on arming wire. Connect swivel loop to nose arming solenoid. Position clips against arming vane plate and arming pin bracket at arming pin.

10. Cut excess arming wire 3 to 4 inches from arming vane plate.

11. Remove fuze safety wire.

12. Perform the following on Rockeye (figure 12-8).

a. (Mod 2 and 3). Install primary wire extractor to nose arming solenoid.

b. Secure arming lanyard to fin release wire extractor (figure 12-8).

c. Install arming lanyard to aft sway brace (figure 12-8).

d. Remove fin release band safety pin.

e. Remove fuze cover from weapon.

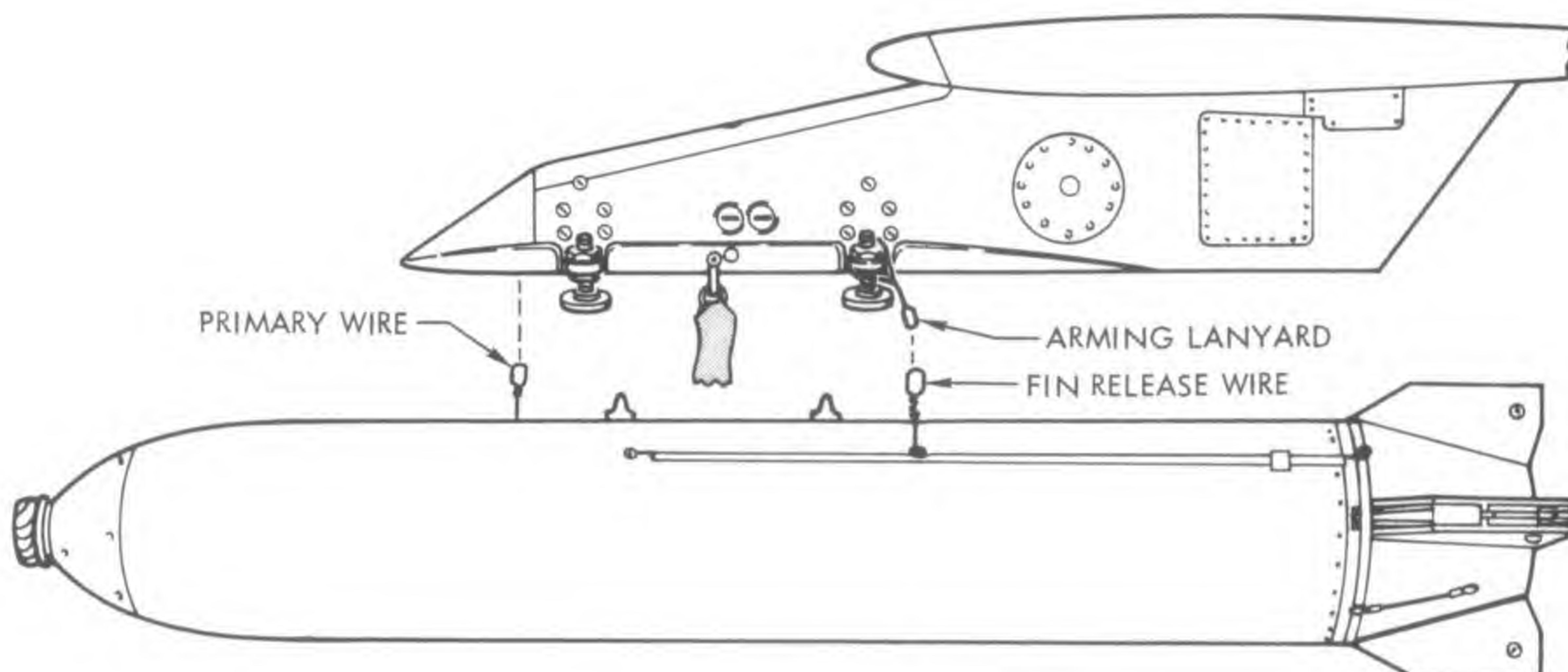
f. Remove fuze safety pin.

13. Repeat applicable steps 1 through 12 for each weapon to be loaded.

14. Install cartridges in breech chamber of each loaded ejector rack unit. Tighten breech caps 444 inch-pounds.

15. Place WEAPON LOADED sign in cockpit.





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Figure 12-8. Rockeye Extractor Installation

#### 12-16. POSTLOADING, QUALITY ASSURANCE.

12-17. Postloading checks are accomplished immediately after weapons loading to ensure weapons are loaded properly/safely prior to launch.

1. Ensure armament switches are in OFF or SAFE position (table 5-1).

2. Ensure WEAPON LOADED sign is in cockpit.

3. Ensure ballistic plug position, located in left hand equipment bay matches patching switch selection.

4. Ensure patching switches is set as required.

5. Ensure store indicator is set to B (c).

6. Ensure pylon ejector rack unit safety pins are installed.

7. Sway braces adjusted; jam nuts are secured against sway brace.

8. Cartridges installed in each loaded ejector rack unit and breech caps tight and proper throttles (orifice) are installed.

9. Inspect CBU for the following:

a. Arming wire properly routed with one Fahnestock clip installed in front of arming vaneplate assembly and one clip installed in front of arming pin.

b. Fuze safety wire removed.

c. Fuze delay set as required, lock screw tight.

10. Inspect Rockeye for the following:

a. Fuze cover removed.

b. Fuze primary wire installed. Safety pin removed.

c. Fin release wire installed. Safety pin removed.

d. Fuze time delay marked on nose fairing in accordance with mission requirement.

e. Fuze primary wire extractor installed in nose solenoid.

f. Fin release wire extractor positive armed.

11. Repeat applicable steps 6 through 10 for each loaded station.

12. Report status to proper authority.



12-18. PRIOR TO LAUNCH.

12-19. Prior to launch procedures consist of removal of safety devices and ensuring integrity of weapon system.

12-20. REARMING AREA. (BEFORE ENGINE TURN-UP).

1. Remove WEAPON LOADED sign from cockpit.
2. Remove pylon ejector rack unit safety pins.

12-21. AFTER LANDING OR GROUND ABORT.

12-22. After landing or ground abort procedures pertain to an aircraft that has returned from a mission with weapons that have not been expended or an aircraft which has ground aborted with weapons aboard.

12-23. SAFING. (DEARMING AREA BEFORE ENGINE SHUTDOWN).

NOTE

There are no procedures performed prior to engine shutdown.

12-24. SAFING. (DEARMING OR REARMING AREA IMMEDIATELY AFTER ENGINE SHUTDOWN).

WARNING

Do not attempt to disarm partially or fully armed fuze. Notify proper authority.

If any component is missing, loose, or damaged, notify proper authority.

1. Ensure fuze(s) indicate safe.
2. Check arming wires for proper installation.
3. External power not applied and aircraft grounded.
4. Install ejector rack unit safety pin in all loaded stations.
5. Check that all armament switches are in OFF or SAFE position (table 5-1).
6. (If applicable). Remove primary wire and fin release wire extractors from arming solenoid/positive arming at each empty station.

12-25. TURNAROUND. Turnaround procedures apply only to aircraft not requiring reconfiguration.

CAUTION

(Rockeye), MK 339 fuze and sway braces must be tight, if not tight, weapon must be unloaded. Notify proper authority.

1. (Rockeye). Fuze and sway braces tight, if not unload.

2. Ensure safing procedures have been completed.

3. Aircraft positioned in a designated area and grounded.

4. Check that firefighting equipment is available.

NOTE

Release and control system checks should be performed if operational conditions permit.

5. For stations to be loaded, perform the following:

- a. Perform aircraft preparation/inspection. (Refer to paragraph 12-5).

- b. Perform weapon inspection for weapon to be loaded. (Refer to paragraph 12-7).

- c. Load weapon according to weapon loading procedures. (Refer to paragraph 12-13).

6. Perform postloading quality assurance check. (Refer to paragraph 12-16).

7. Perform prior-to-launch procedures. (Refer to paragraph 12-18).

12-26. WEAPON UNLOADING.

WARNING

(CBU) If bomblets are released or exposed to view, do not attempt to move or handle the CBU or bomblets. Notify proper authority.

12-27. PREPARATION. Prepare aircraft as follows:

1. Aircraft positioned, firefighting equipment available.
2. External power not applied and aircraft grounded.
3. Check that all armament switches are in OFF or SAFE position (table 5-1).
4. (Loaded stations). Safety pin installed.
5. Remove pylon cartridges.

WARNING

If any arming component is missing, loose, or damaged, notify proper authority.

6. CBU-24, -29, -49 prepare as follows:

WARNING

The M907E1/E2 fuze is a time fuze. When armed, it will detonate at the end of the set delay. If a partially or fully armed condition is indicated, clear the area and notify proper authority.



a. Ensure the arming wire is installed in the arming vane plate, arming pin bracket, and arming pin.

**NOTE**

If safety wire is not available, cut the upper arming wire 6 inches behind the arming pin bracket and twist ends together.

b. Install fuze safety wire and remove arming wire from fuze.

c. Remove arming wire from arming solenoid.

d. (As applicable). Remove arming vane.

**CAUTION**

The fuze may be difficult to remove because of the lockwasher. Use care to prevent damage to fuze during removal.

e. Unscrew fuze from weapon and set arming delay to 90 seconds.

f. Place the fuze in a suitable handling container.

7. Prepare rockeye as follows:

**WARNING**

The MK 339 is a time fuze. If any unsafe indications are noted, timer may be running or fuze may be armed. Keep area clear and notify proper authority immediately.

a. Ensure primary wire protrudes beyond stud of fuze band 1/4 to 1/2 inch.

**NOTE**

Early-model MK 339 Mod 0 fuzes do not have a guide tube to aid in reinstalling the safety pin through the fuze starting pin. With these fuzes, it is necessary to remove the nose fairing from the weapon to install the safety pin. This may be done after the weapon has been downloaded.

b. (MK 339 fuzes with guide tube). Install safety pin through the band release stud and starting pin. It may be necessary to squeeze the tabs of the sealing band together in order to expose the safety-pin hole in the band release stud.

c. Install fin release band safety pin.

d. Disconnect primary and fin release extractors from aircraft.

e. Install fuze cover.

8. Unloading/handling equipment positioned/rigged for unloading.

9. Retract sway braces.

12-28. UNLOADING. Unload weapon as follows:

1. Support weapon with handling equipment.

2. Raise weapon until lugs float in suspension rack hooks.

3. Remove pylon ejector rack unit safety pin.

4. Open ejector rack unit hooks and lower weapon. Remove weapon from area.

5. Repeat steps 1 through 4 for each weapon to be unloaded.







SECTION XIII  
PRACTICE BOMBS

13-1. INTRODUCTION.

13-2. This section contains necessary AV-8A loading/unloading information for the weapons listed below. Procedures contain information necessary to assure safety and reliability, provided the assumptions in paragraph 1-22 have been complied with.

WARNING

This manual does not authorize station loading for flight. For specific authorization, refer to Tactical Manual.

MK 76 Practice Bomb (23.7 lb.)

MK 106 Practice Bomb (4.56 lb.)

13-3. GROUND SUPPORT EQUIPMENT (GSE).

13-4. For ground support equipment refer to tables 2-4 and 2-5. Test equipment and special tools needed to perform loading operations are as follows:

1. Test Equipment.
  - a. None.
2. Special Tools.
  - a. Ground Safety Pin/Manual Release Tool.
  - b. Operating lever (PMBR) P/N50D155-1.

13-5. AIRCRAFT PREPARATION/INSPECTION.

13-6. The following procedures will ensure aircraft is in a safe condition prior to performing loading operations. Perform procedures in sequence indicated; certain steps will not apply depending upon aircraft configuration.

1. Check that aircraft is configured to receive practice bombs in accordance with section III.
2. Check that required release and control system checks have been completed in accordance with section IV.
3. Check that aircraft common procedures have been complied with in accordance with section V.
4. Ensure ballistic plug is installed.
5. Check pylon configured with PMBR for the following:
  - a. Breech caps and cartridges removed.

b. Ensure throttles (orifice) are installed in the ejector rack unit. Tighten to 84 inch-pounds.

c. Ensure breech housing is clean and very lightly oiled.

d. Ground safety pin/manual release tool installed in cocking insert.

e. Sway braces adjusted and jam nut tightened.

f. SNEB rocket connector electrically connected.

6. Check Practice Multiple Bomb Rack as follows: (figure 13-1).

a. All suspension hooks are open and release mechanism is cocked.

b. Sway braces are positioned.

NOTE

Alignment pin must be extended for all MK 106 MOD 3 and retracted for all other practice bombs.

c. Alignment pin positioned.

d. Station selector switch is positioned to SAFE.

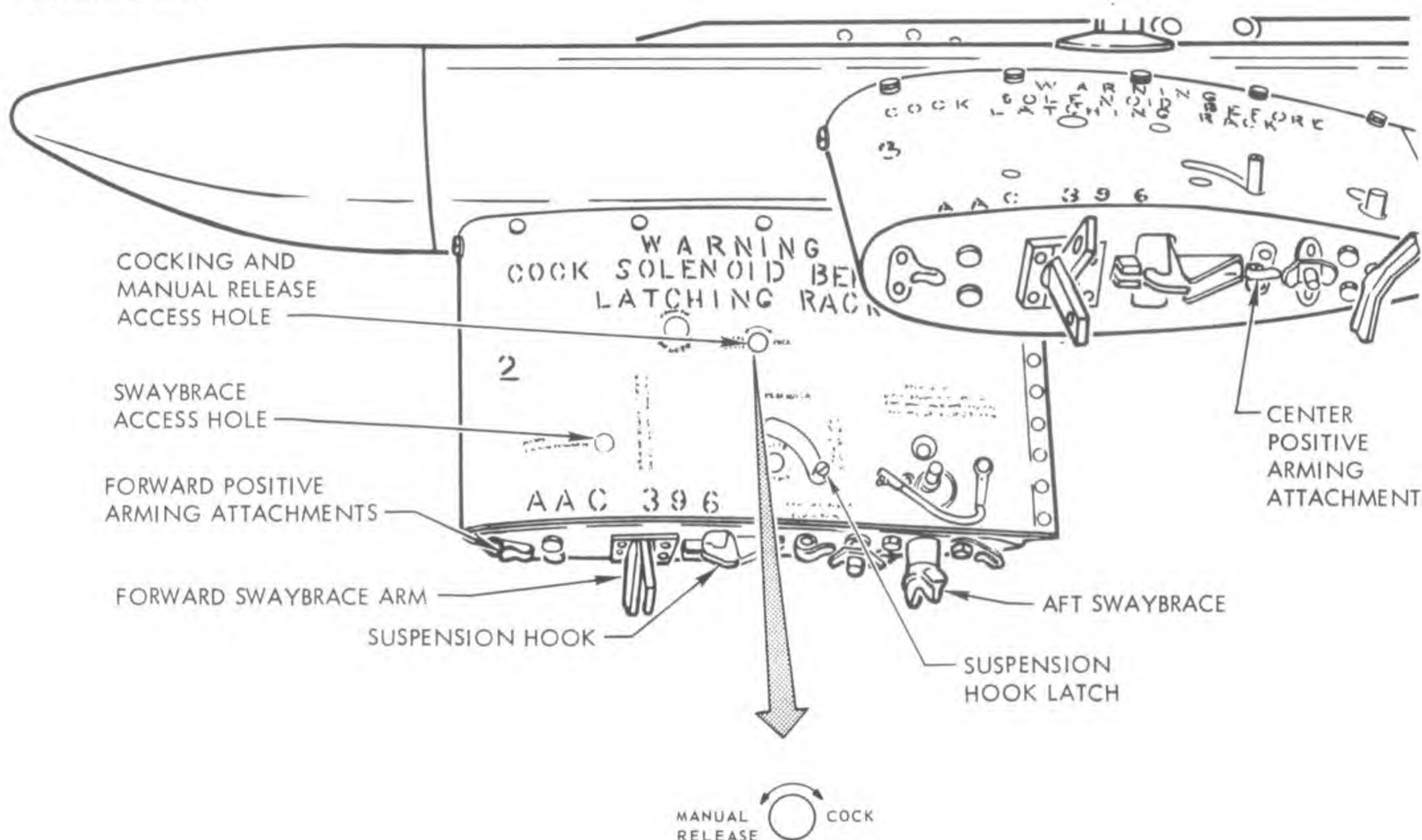
7. Ensure pylon access cover is secured.

13-7. WEAPON INSPECTION.

13-8. If inspection of a weapon reveals that it is not acceptable for loading and can not be made acceptable in a reasonable period of time, the weapon shall be returned to the assembly area. Notify proper authority.

1. Inspect weapon for the following:
  - a. Exterior for damage.
  - b. Suspension lugs installed.
  - c. Fin(s). Alignment, security, damage.
  - d. (MK 76). Signal firing pin assembly, and cotter pin installed.
  - e. (MK 106). Signal firing pin head, safety pin and cotter pin installed.
  - f. (MK 106 MOD 3). Breakaway bands available.
  - g. Repeat steps a through f as applicable for each weapon to be loaded.





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Figure 13-1. Practice Multiple Bomb Rack

### 13-9. WEAPON LOADING.

#### 13-10. PREPARATION. Check for the following:

1. Aircraft preparation/inspection (paragraph 13-5) and weapon inspection (paragraph 13-7) is completed.

#### WARNING

Electrical power shall not be applied to the aircraft at any time during loading procedures.

2. Ensure battery switches are OFF.
3. External power removed from aircraft.
4. Aircraft grounded.
5. Check armament switches are OFF or SAFE position (table 5-1).
6. Patching switches located on weapon control panel set as required (table 5-2).
7. Store type indicator located on weapon control panel set to B (r) for MK 106 or B (ff) for MK 76.

#### 13-11. LOADING. Load weapons as follows:

1. Insert operating lever in TIGHTEN SWAY BRACE access hole; simultaneously rotate lever counter-clockwise and pull forward sway brace arm down and spread apart until in extended position.

#### NOTE

If loading MK 106 bomb, extend dowel pin to engage hole in bomb.

2. Engage bomb suspension lug in suspension hook and latch by pulling on latch studs.
3. Adjust rear sway brace to proper position for type of weapon to be loaded. Insert quick release pin.
  - a. MK 76 - Lower position.
  - b. MK 106 - Center position.
4. Adjust forward sway brace until bomb is held securely between forward sway brace, suspension hook, and aft sway brace.



5. Shake weapon to determine release mechanism is locked.

6. Repeat applicable steps 1 through 5 for each weapon to be loaded.

CAUTION

Do not install cartridges in pylons configured with PMBR.

7. Install ejector rack unit breech caps.

8. (MK 106). Remove and retain safety pin and cotter pin.

9. Place WEAPON LOADED sign in cockpit.

13-12. POSTLOADING, QUALITY ASSURANCE.

13-13. Postloading checks are accomplished immediately after weapons loading to ensure weapons are loaded properly/safely prior to launch.

1. Ensure armament switches are in OFF or SAFE position (table 5-1).

2. Ensure WEAPON LOADED sign is in cockpit.

3. Ballistics plug inserted in B only.

4. Patching switches set to "P".

5. Stores indicator switch set as required.

6. Ensure rack safety pin(s) are installed.

7. Cartridges removed, breech caps installed.

8. Sway braces adjusted; jam nuts secure against sway brace.

9. SNEB rocket connector is properly connected.

10. (PMBR). Station selector SAFE.

11. Repeat applicable steps 6 through 10 for each loaded station.

12. Report status to proper authority.

13-14. PRIOR TO LAUNCH.

13-15. Prior to launch procedures consists of removal of safety devices and ensuring integrity of weapon system.

13-16. REARMING AREA. (BEFORE ENGINE TURN-UP).

1. Remove WEAPON LOADED sign from cockpit.

2. Remove safety pins.

3. (PMBR). Set station selector switch to position 1.

13-17. AFTER LANDING OR GROUND ABORT.

13-18. After landing or ground abort procedures pertain to an aircraft that has returned from a mission with weapons that have not been expended or an aircraft which has ground aborted with weapons aboard.

13-19. SAFING. (DEARMING AREA BEFORE ENGINE SHUTDOWN).

NOTE

There are no procedures performed prior to engine shutdown.

13-20. SAFING. (DEARMING OR REARMING AREA IMMEDIATELY AFTER ENGINE SHUTDOWN).

1. External power not applied and aircraft grounded.

2. Install ejector rack unit safety pin in all loaded stations.

3. Check that all armament switches are in OFF or SAFE position (table 5-1).

4. (PMBR). Station selector - SAFE.

5. (MK 106). Install safety pin and cotter pin.

13-21. TURNAROUND. Turnaround procedures apply only to aircraft not requiring reconfiguration.

1. Ensure safing procedures have been completed.

2. Aircraft positioned in a designated area and grounded.

3. Check that firefighting equipment is available.

NOTE

Release and control system check should be performed if operational conditions permit or if system failed to function properly.

4. For stations to be loaded, perform the following:

a. Perform aircraft preparation/inspection (Refer to paragraph 13-5).

b. Perform weapon inspection for weapon to be loaded (Refer to paragraph 13-7).

c. Load weapon according to weapon loading procedures (Refer to paragraph 13-9).

5. Perform postloading quality assurance check. (Refer to paragraph 13-12).

6. Perform prior-to-launch procedures. (Refer to paragraph 13-14).



13-22. WEAPON UNLOADING.

13-23. PREPARATION. Prepare aircraft as follows:

1. Aircraft positioned, firefighting equipment available.
2. External power not applied and aircraft grounded.
3. Check that all armament switches are in OFF or SAFE position (table 5-1).
4. (Loaded Stations). Safety pins installed.
5. (PMBR). Station selector - SAFE.

6. (MK 106). Safety pin and cotter pin installed.

7. Remove ejector rack unit breech caps.

13-24. UNLOADING. Unload weapons as follows:

1. Support weapon.
2. Insert operating lever in MANUAL RELEASE and COCK hole. Rotate lever in direction indicated on fairing for manual release.
3. Lower weapon and remove weapon from area.
4. Repeat steps 1 through 3 for each weapon to be unloaded.



## SECTION XIV

### GUNS/GUN PODS

#### 14-1. INTRODUCTION.

14-2. This section contains necessary AV-8A loading/unloading information for the weapon listed below. Procedures contain information necessary to assure safety and reliability, provided the assumptions in paragraph 1-22 have been complied with.

#### WARNING

This manual does not authorize station loading for flight. For specific authorization, refer to Tactical Manual.

Aden 30MM Aircraft Gun

#### 14-3. GROUND SUPPORT EQUIPMENT (GSE).

14-4. For ground support equipment refer to tables 2-4 and 2-5. Test equipment and special tools needed to perform loading operations are as follows:

1. Test Equipment.
  - a. Test Unit Adapter Lead (75/542).
2. Special Tools.
  - a. Pneumatic Cocking Valve.
  - b. Ammunition Belt Strap (26VA/6039426).
  - c. Ammunition Calibrator.

#### 14-5. AIRCRAFT PREPARATION/INSPECTION.

14-6. The following procedures will ensure aircraft is in a safe condition prior to performing loading operations. Perform procedures in sequence indicated; certain steps will not apply, depending upon aircraft configuration.

1. Check that aircraft is configured to receive weapons in accordance with section III.
2. Check that required release and control system checks have been completed in accordance with section IV.
3. Check that aircraft common procedures have been complied with in accordance with section V.
4. Check that safety pins are installed in all loaded stations.
5. Check that gun electrical cable is connected.
6. Remove aft and lower center gun pod fairings.
7. Remove ammunition access panels and disconnect outer ammunition chutes.

8. Remove link chute.

9. Remove ammunition box.

10. Repeat steps 5 through 9 for each gun pod.

#### 14-7. WEAPON INSPECTION.

14-8. If inspection of a weapon reveals that it is not acceptable for loading, and can not be made acceptable in a reasonable period of time, the weapon shall be returned to the assembly area. Notify proper authority.

1. Inspect ammunition for the following:

- a. (Loose Belts). Check that ammunition is calibrated, and is clean and undamaged.
- b. (Preloaded ammunition box). Check that box is fully loaded.
- c. (Preloaded ammunition box). Check that box is not dented, gouged and is free of any other damage that may cause ammunition to bind.

#### 14-9. WEAPON LOADING.

14-10. PREPARATION. Check for the following:

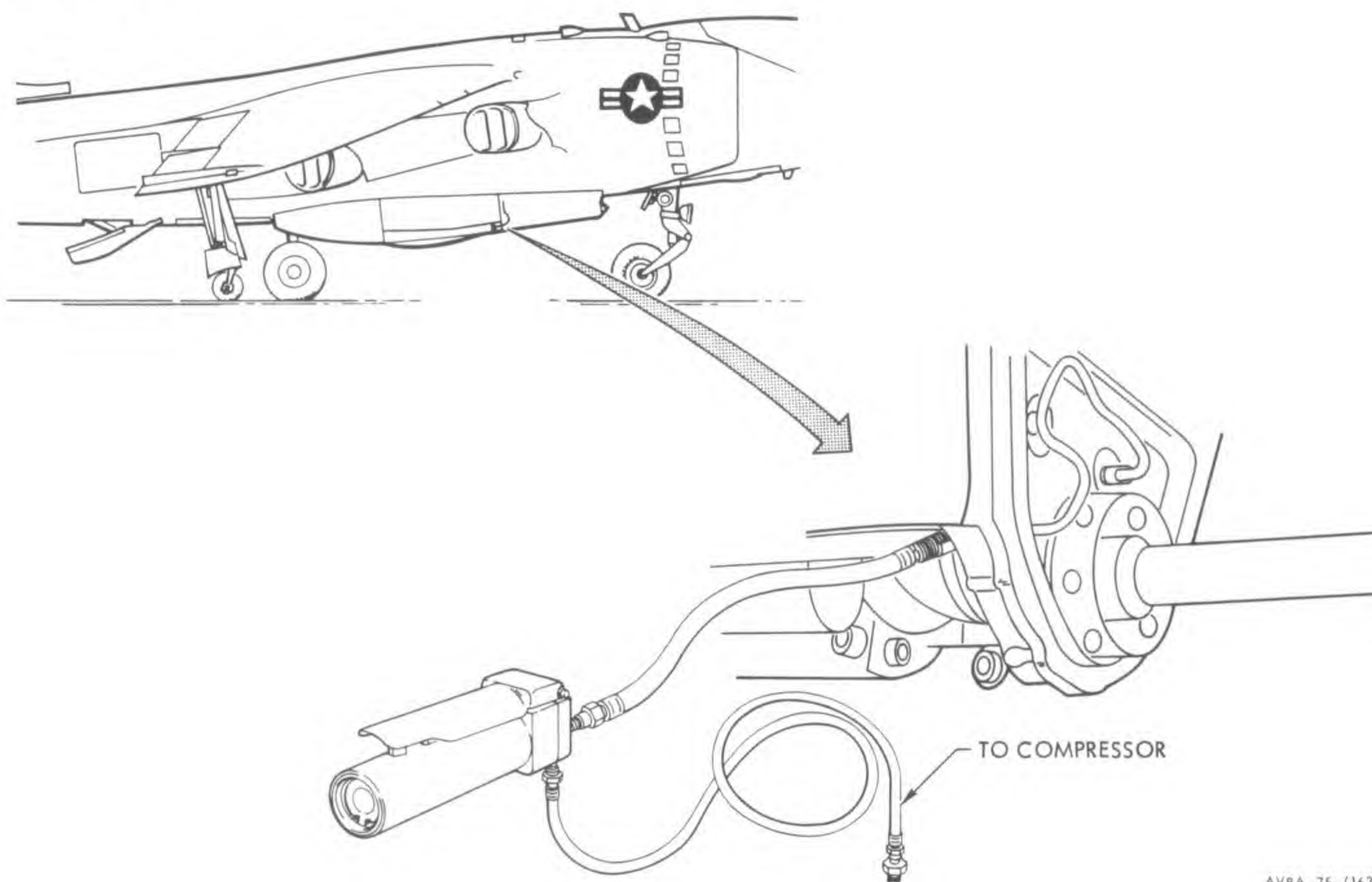
1. Aircraft preparation/inspection (paragraph 14-5) and weapon inspection (paragraph 14-7) is completed.

#### WARNING

Electrical power shall not be applied to the aircraft at any time during loading procedures.

2. External power removed from aircraft.
3. Aircraft grounded.
4. Ensure battery switches are OFF.
5. Position Armament Control switches as follows:
  - a. Number 1 and number 2 MASTER switches to SAFE.
  - b. Guns selector switches to OFF.
  - c. Fuzing selector switches to OFF.
  - d. Pylon selector switches to OFF.
  - e. Gun and bomb/rocket triggers stowed and covered.
6. Check that all other armament switches are in OFF or SAFE position (table 5-1).
7. Weapon/loading equipment positioned/rigged for loading.





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Figure 14-1. Cocking Valve Connected

14-11. **LOADING.** Load weapons as follows:

**NOTE**

Loading procedures are contained in prior to launch paragraph and must be performed in a designated arming area.

14-12. PRIOR TO LAUNCH.

14-13. **ARMING AREA (BEFORE ENGINE TURNUP):**

1. Remove loaded ammunition box from trailer and position beneath rear gun cradle.
2. Guide ammunition feed strap through the center ammunition chute.
3. Lift ammunition box until the forward hook can be engaged between the guides on the mounting roller, and let aft end rest on the ground.
4. Remove the forward top cover plate and attach the ammunition feed strap to leading round.
5. Raise rear of ammunition box and guide belt through feed chute.

6. Push ammunition box forward until shoulder bolts can be engaged with cradle trunnions.

7. Check that box is fully forward, then insert pin through gun cradle and shoulder bolt, locking ammunition box in position.

8. Pull ammunition through center feed chute into the inner feed chute. Remove feed strap.

**NOTE**

Ensure feeder mechanism shaft engages with breech cylinder shaft.

9. Position the leading round into the feed mechanism sprockets.

10. Connect cocking valve hose to pod cocking adapter, located on forward end of gun (figure 14-1).

**WARNING**

Keep fingers out of ammunition belt and clear of gun feed mouth.

11. With leading round secured against feed sprocket, cycle gun three times.



NOTE

If gun loaded indicator can be fully depressed, there is no round in the chamber of the gun. Gun must be recocked until indicator cannot be fully depressed.

12. Depress the gun loaded indicator, ensuring that indicator is not fully depressed.

13. Disconnect cocking valve hose from cocking adapter.

14. Reinstall outer feed chute.

15. Connect an empty link to leading link in feed mechanism.

16. Reinstall link chute and check that empty link is fully engaged in link chute.

17. Reinstall all fairings and access panels.

18. Repeat steps 1 through 17 for each gun to be loaded.

19. Remove rack safety pin(s).

14-14. AFTER LANDING OR GROUND ABORT.

14-15. After landing or ground abort procedures pertain to an aircraft that has returned from a mission with weapons that have not been expended or an aircraft which has ground aborted with weapons aboard.

14-16. SAFING (DEARMING AREA IMMEDIATELY AFTER ENGINE SHUTDOWN).

1. (Loaded stations). Install ejector rack unit safety pin(s).

2. External power not applied and aircraft grounded.

3. Ensure battery switches are OFF.

4. Position Armament Control switches as follows:

a. Number 1 and number 2 MASTER switches to SAFE.

b. GUNS selector switches to OFF.

c. Fuzing selector switches to OFF.

d. Pylon selector switches to OFF.

e. Gun and bomb/rocket triggers stowed and covered.

5. Check that all other armament switches are in OFF or SAFE position (table 5-1).

6. Remove pylon ejector rack unit cartridges from loaded stations.

7. Unloading equipment positioned/rigged for unloading.

NOTE

If gun loaded indicator cannot be fully depressed, perform steps 9 through 21. If gun loaded indicator can be fully depressed, gun is safe.

8. Depress gun loaded indicator, ensuring that indicator is fully depressed.

9. Remove aft and lower center gun pod fairings.

10. Remove ammunition feed mechanism access panels and disconnect outer ammunition chute.

11. Remove link chute.

12. Disengage feeder shaft from breech cylinder shaft.

13. Disengage shoulder bolts, slide ammunition box aft and lower aft end of box to the ground.

14. Pull ammunition belt until it clears center ammunition chute.

15. Disengage ammunition box forward hook from mounting roller guides and remove from aircraft.

16. Reengage the feeder shaft to breech cylinder shaft.

17. Connect cocking valve hose to pod cocking adapter on forward end of gun.

CAUTION

Position one man to catch ejected rounds.

18. Cycle gun to clear unexpended rounds.

NOTE

If gun loaded indicator cannot be fully depressed there is a round in the chamber of the gun, and gun must be cocked until gun is clear.

19. Depress gun loaded indicator, ensuring that indicator is fully depressed.

20. Disconnect cocking valve hose from cocking adapter.

21. Reinstall all chutes, fairings and access panels.

22. Repeat steps 8 through 21 for other gun pod.







## SECTION XV

### FUEL TANKS

#### 15-1. INTRODUCTION.

15-2. This section contains necessary AV-8A loading/unloading information for stores listed below. Procedures contain information necessary to assure safety and reliability provided the assumptions in paragraph 1-22 have been complied with.

#### WARNING

This manual does not authorize station loading for flight. For specific authorization, refer to Tactical Manual.

#### 120 GALLON FUEL TANK

#### 15-3. GROUND SUPPORT EQUIPMENT (GSE).

15-4. For ground support equipment refer to tables 2-4 and 2-5. Test equipment and special tools needed to perform loading operations are as follows:

##### 1. Test Equipment.

a. None

##### 2. Special Tools.

a. Ground Safety Pin/Manual Release Tool

#### 15-5. AIRCRAFT PREPARATION/INSPECTION.

15-6. The following procedures will ensure aircraft is in a safe condition prior to performing loading operations. Perform procedures in sequence indicated; certain steps will not apply depending upon aircraft configuration.

1. Check that aircraft is configured to receive stores in accordance with section III.

2. Check that required release and control system checks have been completed in accordance with section IV.

3. Check that aircraft common procedures have been complied with in accordance with section V.

4. Ensure patching switches are set to F.

5. Ensure store type indicator switch is set to FUEL.

6. Check pylon for the following (Stations 2 and 4).

a. Breech caps and cartridges removed.

b. Ensure 0.156 inch throttles (orifice) are installed in the pylon ejector rack unit. Tighten to 84 inch-pounds.

c. Ensure breech housing is clean and very lightly oiled.

d. Ground safety pin/manual release tool installed in cocking insert.

e. Sway braces adjusted and jam nuts positioned above sway brace arm.

f. Ejector rack unit hooks are open.

g. Remove fuel valve cover plate/air valve.

h. Remove pylon nose fairing.

i. Repeat step 6 for each station to be loaded.

#### 15-7. STORE INSPECTION.

15-8. If fuel stores inspection reveal that it is not acceptable for loading and cannot be made acceptable within a reasonable period of time, the store shall be returned to the assembly area. Notify proper authority.

1. Ensure that store is free of cracks and other damage that would preclude use.

2. Ensure that suspension lugs are installed with base of lug eye flush with store surface and aligned.

3. Ensure fuel/air line plugs are removed and are free of foreign matter.

4. Ensure electrical connector is serviceable.

5. Sealing rings lightly oiled.

#### 15-9. STORE LOADING.

15-10. PREPARATION. Check for the following:

1. Aircraft preparation/inspection (paragraph 15-5) and store inspection (paragraph 15-7) is completed.

#### WARNING

Electrical power shall not be applied to the aircraft at any time during loading procedures.

2. Ensure battery switches are OFF.

3. External power removed from aircraft.

4. Aircraft grounded.

5. Check armament switches are in OFF or SAFE position (table 5-1).

6. Patching switches located on weapon control panel set as required (table 5-2).

7. Store type indicated located on weapon control panel set to FUEL.

8. Store/loading equipment positioned/rigged for loading.



Fuel Tanks

15-11. LOADING. Load store as follows:

1. Using available authorized loading equipment, raise store until store lugs are aligned with ejector rack unit hooks.

CAUTION

Guide fuel/air disconnect tubes onto fuel/air disconnect fittings to prevent damage.

2. Guide fuel/air lines into pylon.
3. Latch ejector rack unit hooks.
4. Visually inspect ejector rack unit indicates locked. (Operating arm not visible in ground safety pin hole).
5. Gently shake store to ensure store is supported by ejector rack unit hooks.
6. Install ejector rack unit safety pin.
7. Lower loading equipment sufficiently to clear store and remove.
8. Adjust sway braces so store is centered on ejector rack unit. Tighten sway braces to 84 inch-pounds. Tighten jam nuts.
9. Connect electrical connector.
10. Reinstall pylon nose fairing.
11. Repeat steps 1 through 10 for each store to be loaded.
12. Install cartridges in breech chamber of each loaded ejector unit. Tighten breech caps 444 inch-pounds.

15-12. POSTLOADING, QUALITY ASSURANCE.

15-13. Postloading checks are accomplished immediately after store loading to ensure stores are loaded properly/safely prior to launch.

1. Ensure armament switches are in OFF or SAFE position (table 5-1).
2. Ensure patching switches is set to F.
3. Ensure store indicator is set to FUEL.
4. Ensure pylon ejector rack unit safety pins are installed.
5. Sway braces adjusted; jam nuts are tight.
6. Fuel/air lines/electrical connectors are connected and secure.
7. Ensure nose fairing on pylon is secure.
8. Repeat applicable steps 5 through 7 for each loaded station.
9. Report status to proper authority.

15-14. PRIOR TO LAUNCH.

15-15. Prior to launch procedures consist of removal of safety devices and ensuring integrity of weapon system.

15-16. REARMING AREA (BEFORE ENGINE TURNUP).

1. Remove pylon ejector rack unit safety pins.

15-17. AFTER LANDING OR GROUND ABORT.

15-18. After landing or ground abort procedures pertain to an aircraft that has returned from a mission with stores that have not been expended or an aircraft which has ground aborted with stores aboard.

15-19. SAFING (DEARMING OR REARMING AREA IMMEDIATELY AFTER ENGINE SHUTDOWN).

WARNING

If any component is missing, loose, or damaged, notify proper authority.

1. (Loaded stations). Install ejector rack unit safety pins.
2. External power not applied and aircraft grounded.
3. Check that all armament switches are in OFF or SAFE position (table 5-1).

15-20. TURNAROUND. Turnaround procedures apply only to aircraft not requiring reconfiguration.

1. Ensure safing procedures have been completed.
2. Aircraft positioned in a designated area and grounded.
3. Check that firefighting equipment is available.

NOTE

Release and control system checks should be performed if operational conditions permit.

4. For stations to be loaded, perform the following:
  - a. Perform aircraft preparation/inspection. (Refer to paragraph 15-5).
  - b. Perform store inspection for store to be loaded. (Refer to paragraph 15-7).
  - c. Load store according to store loading procedures. (Refer to paragraph 15-9).
5. Perform postloading quality assurance check. (Refer to paragraph 15-12).
6. Perform prior-to-launch procedures. (Refer to paragraph 15-14).



15-21. STORE UNLOADING.

15-22. PREPARATION. Prepare aircraft as follows:

1. Aircraft positioned, firefighting equipment available.
2. External power not applied and aircraft grounded.
3. Check that all armament switches are in the OFF or SAFE position (table 5-1).
4. (Loaded stations). Safety pin installed.
5. Remove pylon cartridges.

WARNING

Fuel Tank must be empty prior to unloading.

6. Ensure tanks are empty prior to unloading.
7. Disconnect electrical connectors.

CAUTION

Ensure unloading and handling equipment is configured to safely accept store being unloaded.

8. Unloading equipment positioned/rigged for unloading.

9. Sway braces retracted.

15-23. UNLOADING. Unload stores as follows:

1. Support store with handling equipment.
2. Raise store until lugs float in ejector rack unit hooks.
3. Remove ejector rack unit safety pin.
4. Open ejector rack unit hooks and lower store. Remove store from area.
5. Repeat steps 1 through 4 for each store to be unloaded.







## GLOSSARY

## A

AAB - Aviation Armament Bulletin

AAC - Aviation Armament Change

ABORT - The termination by a pilot of a flight or mission either before or after takeoff without completing the mission.

ACCESSORY - An item which is required to mate the weapons (stores) to the aircraft and which remains as an integral part of the system (bomb racks, pylons, launchers, etc).

ACFT - Aircraft

ADM - Adapter Unit

AEC - Atomic Energy Commission

AERO - Aeronautic

AFC - Airframe Change

AFTER ENGINE TURNUP - That time in the prior-to-launch phase when the pilot has completed pre-taxi checklist.

AIM - Air Intercept Missile

AIM-9 - See Sidewinder

AIRBORNE STORES - Fuel and tanks, nonexpendable training weapons, pods, and all similar items intended for carriage by aircraft, including the racks, launchers, adapters, and detachable pylons used for such carriage. This definition applied to items which do not formally separate from the aircraft in flight.

AIRBORNE WEAPON - All missiles, rockets, bombs, and all similar items intended for carriage by aircraft, including the racks, launchers, adapters, and detachable pylons used for such carriage. This definition applied to items which are normally separated from the aircraft in flight.

AIRCRAFT ARMAMENT SUBSYSTEMS - Discrete groups of components that perform the function of either monitoring, controlling, arming, releasing or firing an airborne weapon or store from an aircraft.

AIRCRAFT ARMAMENT SYSTEM - Aircraft armament subsystems which, when interconnected, give the aircraft its airborne weapons/stores capability.

AIRCRAFT CONFIGURATION - The system and components required to carry or deliver a specific airborne weapon/store.

AREA, ARMING - That area where a weapon is changed from the safe condition to a state of readiness for initiation, with the area ahead of the aircraft clear and maintained clear until completion of the launch or weapon safing in an abort situation.

AREA, REARMING - That area where an operation that replenishes the prescribed airborne weapons/stores, ammunition, bombs, and other armament items for an aircraft is conducted. This operation may include fuzing and any stray voltage checks as applicable.

ARM, ARMING - The action that places ammunition exploding devices in condition to detonate burster charges; fuze action change from a safe condition to a state of firing readiness.

ARMING/RELEASE/EXTRACTOR WIRE - A wire inserted in the fuze/arming mechanism of a weapon. The arming wire pulls out of the fuze/arming device when the bomb is dropped in the armed mode, thus putting the bomb into condition to explode when it hits.

AS APPLICABLE - Used in prefacing certain steps/procedures and meaning that is a step/procedure has not been previously accomplished, accomplish it at this point. This term may also be used in prefacing a procedure that applies to only one weapon in a group of weapons or one function in a group of functions.

AUTHORIZED - That which is approved by responsible authority.

## B

BEFORE ENGINE TURNUP - That time in the prior to launch evolution when the pilot/flight crew is/are commencing general aircraft ground inspection/checks and extending until the inspection/checks are completed.

## C

CAUTION - An operating procedure, practice, etc. which, if not strictly observed, could result in damage to or destruction of equipment.

CBU - Cluster Bomb Unit

CHECKLIST - The term "checklist" as used in this manual refers to an individual sequence of procedures bearing a title and constituting a part of a publication designated as the loading checklist.

CHECKLISTS - The term "checklists" as used in this manual refers to several individual lists bound and furnished under one cover.



**CONTRACTOR FURNISHED EQUIPMENT (CFE)** - Item or piece of equipment furnished by contractor.

**CONVENTIONAL WEAPONS** - Nonnuclear weapons; excludes all biological weapons and generally excludes chemical weapons except for existing smoke, incendiary agents, and agents of the riot-control type.

## D

**DEARMING AREA** - That area where a weapon is changed from a state of readiness for initiation to a safe condition; when forward firing weapons are involved, the area ahead of the aircraft must be clear and maintained clear until completion of weapon safing.

**DESIGNATED LOADING AREA** - That area where an operation that replenishes the prescribed airborne stores, ammunition, bombs, and other armament items for an aircraft is conducted. When handling weapons in a rearming area, all fuzes and/or initiators shall remain safe and all gun chambers clear. This operation may include fuzing (i.e., bombs) and stray voltage checks, as applicable.

**DOWN LOADING** - An operation that removed airborne weapons/stores from an aircraft.

**DROPPING SAFE** - Releasing an airborne weapon/store in a safe condition so that it will not function on impact.

**DUD** - Explosive ammunition which has failed to function.

## E

**EMR** - Electromagnetic Radiation

**ENSURE** - A word, which when added to a step or procedure implies that this step or procedure would have been previously done; if not, complete at this time.

**EOD** - Explosive Ordnance Disposal

**EXPLOSIVE ORDNANCE DISPOSAL UNIT** - Personnel with special training and equipment who render explosive ordnance safe (such as bombs, mines, projectiles, and booby traps), make intelligence reports on such ordnance, and supervise the safe removal thereof.

**EPP** - Emergency Power Package

**EPU** - Electrical Power Unit

**ERU** - Ejector Rack Unit

## F

**FFAR** - Folding Fin Aircraft Rocket

**FIN** - A fixed or adjustable airfoil attached to a weapon to give directional stability.

**FUZE** - A term for the mechanical or electrical device used to initiate the detonation at the desired time.

**FUZE SETTING** - A term designating the time at which the fuze is set to function.

**FWD** - Forward Direction

## G

**GOVERNMENT FURNISHED EQUIPMENT (GFE)** - Item or piece of equipment furnished by the government.

**GP** - General Purpose (bombs)

**GROUND** - Electrical term for a conducting connection to the earth or some other conducting body at zero potential with respect to the earth.

**GSE** - Ground Support Equipment

## H

**HANGFIRE** - An abnormal delay between the instant of impact of the firing pin on the primer and the explosion of the propelling charge, due to the temporary failure of primer, igniter, or propelling charge to function.

**HERO** - Hazardous Electromagnetic Radiation to Ordnance

**HEI** - High Explosive Incendiary

**HMI** - Handbook Maintenance Instructions

**HUNG BOMB** - A bomb which accidentally remains attached to an aircraft after attempt to release from the rack.

**Hz** - Cycles Per Second

## I

**IAAB** - Interim Aviation Armament Bulletin

**IAAC** - Interim Aviation Armament Change

**IAFC** - Interim Airframe Change

**ICS** - Intercommunication System

**IGNITER** - The component that is fired and in turn initiates the propellant charge.

**INTERVALOMETER** - An electrical timing device which controls the release of stores at specified sequence.

**IR** - Infrared

## J

**JETTISON** - The release or drop of weapons/stores from a distressed aircraft in flight to lighten the load or because of dangerous or uncertain conditions of the weapons/stores.



## L

LANYARD - A device (normally a strong strap, cloth, or wire) used to manually actuate an arming or safing device on a weapon release.

LAU - Launching Mechanism, Aircraft Installed Unit

LDGP - Low Drag General Purpose Bombs

LOADING - An operation that installs airborne weapons/stores on or in an aircraft.

## M

MIM - Maintenance Instruction Manual

MILSTRIP - Military Requisitioning and Issue Procedure

MISFIRE - Ordnance term for a failure of the primer or the propelling charge of a weapon after an attempt to fire same.

MISSILE LAUNCHER - Name for device from which self-propelled weapon that is controlled in flight is started on its course. See Rocket Launcher.

MOD - Modified or Modification

MSL - Missile

## N

NAVAER - Naval Aeronautics

NAVAIR - Naval Air Systems Command

NAVORD - Naval Ordnance

NAVSUP - Naval Supply

NOTE - An operating procedure, condition, etc. which is essential to highlight.

NWEF - Naval Weapons Evaluation Facility - Albuquerque, New Mexico.

## O

OP - Ordnance Publication

## P

PFCS - Pilots Flight Control Stick

PMBR - Practice Multiple Bomb Rack

POSTLOADING - An electrical/mechanical quality assurance test/inspection of airborne weapons/stores conducted after completion of loading.

POWER REMOVED - Engine(s) secured, all aircraft electrical circuits de-energized and electrically interrupted.

PRIOR TO LAUNCH - That period of time before the transition from static repose to dynamic flight of an aircraft. In association with conventional weapon load or postload, the prior-to-launch procedures are subdivided into those which may be conducted while the aircraft is in either the rearming area or the arming area.

PROPER AUTHORITY - That authority responsible as a command function.

PYROTECHNICS - Compounds of chemicals that produce a smoke or brilliant light in burning, used for signaling or for lighting up an area at night.

## Q

QUARTERLY INDEX - The term "quarterly index" as used in this manual refers to a current listing of all conventional weapons loading checklists, release and control checklists, and conventional weapons loading manuals by type aircraft, federal stock number for all the above listed and all changes issued pertinent thereto.

## R

RAD HAZ - Radiation Hazard

REARMING - An operation that replenishes the prescribed stores of ammunition, bombs, and other armament items for an aircraft, naval ship, tank, or armored vehicle, including replacement of defective ordnance equipment, in order to make it ready for combat service; resetting the fuze on a bomb, or on an artillery, mortar, or rocket projectile, so that it will detonate at the desired time.

REARMING AREA - See Area, Rearming.

RECOMMENDED - Meaning those procedures or equipment which have been verified and recommended for use over certain other procedures or items of equipment.

RELEASE AND CONTROL SYSTEM CHECK - Functional test of an aircraft electrical/mechanical conventional weapon release and/or control subsystem.

RELIABILITY - The probability that material will perform its intended function for a specified period under stated conditions.

RESTRICTION - A limitation or prohibiting of procedures, practices, conditions or use of an item of equipment that will endanger personnel, could result in damage or destruction or failure of an item/equipment or the improper use of the item.

rf - Radio Frequency

ROCKET - A thrust-producing system or a complete missile which derives its thrust from ejection or hot gases.



**ROCKET HEAD** - The forward rocket component which contains the high explosive charge or other filler, booster, and the fuze propelled by a rocket motor.

**ROCKET LAUNCHER** - A device that fires self-propelled types of ammunition.

## S

**SAFETY PIN** - A mechanical device used to interrupt the normal action of an ordnance device.

**SAFETY WIRE/LOCKWIRE** - A wire set into a component to lock movable parts into safe/secured positions.

**SCP** - Sidewinder Control Panel

**SEC** - Support Equipment Change

**SERVICING** - The refilling of aircraft with consumables such as fuel, oil, and compressed gases to predetermined levels, pressures, quantities, or weights.

**SIDEWINDER** - A solid-propellant, air-to-air rocket, nonnuclear warhead, and infrared heat seeking homer. Designated at AIM-9.

**SLANT (/)** - The slant mark implies that the nomenclature terminology or procedure information may be for certain series of aircraft, or same pertains to that series.

**SRC** - Stores Reliability Card

**SSD** - Supplementary Safety Device

**SSE** - Special Support Equipment

**STRAY VOLTAGE** - The term used to designate an undesired voltage that exists between two specified points of a weapon system and is capable of producing a flow of current when a designated electric measuring device is connected between the two points.

**STRAY VOLTAGE CHECK** - Measurement of the terminal voltage of aircraft electrically initiated weapon firing circuits, measured at the point of external connection to the pyrotechnic device igniter under the following conditions:

- (1) before connection of igniter and firing circuit;
- (2) with the firing circuit deenergized; (3) with the aircraft engine(s) running; and (4) after completion of all aircraft preflight checks before taxi.

**SUU** - Suspension and Release Unit

## T

**TDD** - Target Detecting Device

**TURNAROUND** - The length of time between arriving at a point and departing from that point. It is used in this sense for the turnaround of shipping in ports, aircraft refueling, and rearming.

**TURNAROUND CYCLE** - Used in conjunction with vehicles, ships, and aircraft and comprises the following: loading time at home; time to and from destination; unloading time at home; planned maintenance time; and, where applicable, time awaiting facilities.

**TS** - Test Set

## U

**UNLOADING** - See down loading.

**UR** - Unsatisfactory Report

## V

**VERIFIED** - Meaning that which has been physically accomplished by the responsible organization.

## W

**WARHEAD** - The section of the weapon that carries the primary explosive charge.

**WARNING** - An operating procedure, practice, etc. which, if not correctly followed, could result in personal injury or loss of life.

**WEAPON SYSTEM** - A weapon and those components required for its operation.

**WEAPON POSITIONED FOR LOADING AND SECURED** - The weapon to be loaded has been moved to a point where the weapon's suspension lugs are aligned with and will engage the bomb rack/pylon suspension hooks/slots when the loading/hoisting equipment is operated; the weapon is secured to the transporting/loading equipment and this equipment is secured with brakes, wheelchocks, tie-down straps, and outriggers as applicable.

**WCP** - Weapon Control Panel

**WOW** - Weight on Wheel Switch

## X

**"X" POSITION** - Normally referring to the 45° position (from the vertical centerline of the store) of the fins, wings, and lugs.

## Z

**ZERO-LENGTH LAUNCHING** - A technique in which the first motion of the missile or aircraft removes it from the launcher.

**ZERO VOLTAGE** - The term used to designate the lack of a voltage indication between two specified points of a weapon system when a designated electric measuring device is connected between the two points.

**ZUNI** - Supersonic, unguided, 5.0-inch folding fin rocket.



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